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General Psychology: An Introduction: Instructor Manual

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About Noba

The Diener Education Fund (DEF) is a non-profit organization founded with the mission of re-inventing higher education to serve the changing needs of students and professors. The initial focus of the DEF is on making information, especially of the type found in textbooks, widely available to people of all backgrounds. This mission is embodied in the Noba project.

Noba is an open and free online platform that provides high-quality, flexibly structured textbooks and educational materials. The goals of Noba are three-fold:

- To reduce financial burden on students by providing access to free educational content
- To provide instructors with a platform to customize educational content to better suit their curriculum
- To present material written by a collection of experts and authorities in the field

The Diener Education Fund is co-founded by Drs. Ed and Carol Diener. Ed is the Joseph Smiley Distinguished Professor of Psychology (Emeritus) at the University of Illinois. Carol Diener is the former director of the Mental Health Worker and the Juvenile Justice Programs at the University of Illinois. Both Ed and Carol are award-winning university teachers.

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The purpose of this instructor’s resource module is to help design and implement a lesson providing a concise history about the foundational ideas of the science of psychology, primarily from the 19th century to present. In what follows, you will find a complete lecture outline to accompany the Noba PowerPoint slides. Additionally, there are multiple activities that can be used to engage students, as well as thought-provoking questions to initiate class discussion. At the end of this module you will also find supplemental source materials (podcasts, videos, handouts, etc.) that might be helpful in teaching the history of psychology.

Learning Objectives

- **Relevant APA Learning Objectives (2.0)**
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology’s content domains (1.2)
  - Summarize important aspects of history of psychology, including key figures, central concerns, and theoretical conflicts (1.2C)

- **Content Specific Learning Objectives:**
  - Describe the precursors to the establishment of the science of psychology.
  - Identify key individuals and events in the history of American psychology.
  - Describe the rise of professional psychology in America.
  - Develop a basic understanding of the processes of scientific development and change.
Recognize the role of women and people of color in the history of American psychology.

Abstract

This module provides an introduction and overview of the historical development of the science and practice of psychology in America. Ever-increasing specialization within the field often makes it difficult to discern the common roots from which the field of psychology has evolved. By exploring this shared past, students will be better able to understand how psychology has developed into the discipline we know today.

Class Design Recommendations

This module was designed to be taught in approximately two 75-minute class periods. It can be helpful to remind students that this module is important because it provides context for all of the interesting ideas to follow, in the ensuing modules.

1st Class Period (50-75 minutes)

• Introduction
  ● Importance of history
  ● Prehistory
    ■ John Locke
    ■ Thomas Reid

• Physiology and psychophysics
  ● von Hemholtz's speed of the neural impulse/hearing and vision
  ● Weber and Fechner's psychophysics
  ● Wilhelm Wundt as the “father of psychology”
  ● Implications of Wundt’s work (introspection and consciousness)
• Scientific psychology comes to the U.S.
  ◦ Wundt's relationship to Titchener and structuralism
  ◦ Rapid spread of experimental psychology
  ◦ Balance of science and practice

• Functionalism
  ◦ Work of William James and consciousness
  ◦ Contribution of G. Stanley Hall and the influence of evolutionary theory
  ◦ James Cattell and intelligence
    - Individual differences

• Growth of psychology
  ◦ Gestalt psychology
  ◦ Behaviorism
  ◦ Cognitive psychology

  2nd Class Period (50-75 minutes)

• Applied psychology in America
  ◦ Alfred Binet, Intelligence testing, and relevant debate
  ◦ Munsterberg and origins of I/O psychology
  ◦ Clinical psychology and contributions of Lightner Witmer

• Psychology as a profession
  ◦ Creation of the AAAP
  ◦ Impact of WWII and the creation of the Boulder and Vail Models
Module Outline

Introduction: This section depicts the history of psychology from the mid-19th century, referring to this time period as the beginning of modern psychology, and argues that an understanding of history is crucial to understanding any person, idea, or social construct. History provides context for understanding how we got to where we are today.

A Prehistory of Psychology: This section briefly examines a time prior to the 19th century. The concept of empiricism, or the idea that all knowledge comes from experience, is discussed via the ideas of John Locke and Thomas Reid.

Physiology and Psychophysics

- **Hermann von Helmholtz**'s explorations of the sensory systems are discussed. Most specifically, his work measuring the speed of neural impulses, as well as his inquiries into the physiology of hearing and vision. In part, his work demonstrated that our senses are fallible but can still be studied scientifically. Another important observation of von Helmholtz was the distinction between physical reality and psychological reality.

- German researchers **Ernst Weber** and **Gustav Fechner** investigated psychophysics, or the relationship between the experiences of the senses and external reality. Weber and Fechner discovered ways to measure physical stimuli and the human perception of that stimuli.

- **Wilhelm Wundt** is widely considered to be the “father of psychology,” even though he was actually a physiologist and philosopher. Wundt helped to establish and promote the field of experimental psychology. He was a consummate teacher and academic and exposed countless students to the field. Wundt's work focused largely on introspection, the goal of which was to identify elements of consciousness. Perhaps his most famous work was
completed in the area of reaction time. The research of Wundt and his students showed that consciousness can be studied scientifically.

Scientific Psychology Comes to the United States

- **Edward Titchener**, a student of Wundt’s, brought some of Wundt’s ideas to the U.S. Titchener’s work was referred to as **structuralism**, and its followers were interested in the contents of the mind and what the mind is.

- Experimental psychology spread quickly in North America, with over 40 labs in the U.S. and Canada by 1900. Feeling that the **American Psychological Association** (APA; founded in 1892) did not adequately represent the interests of experimental psychologists, Titchener spearheaded the creation of the **Society of Experimental Psychologists**, in 1904. One of Titchener’s students, **Margaret Floy Washburn**, became the first woman in America to earn a Ph.D. in psychology.

Toward a Functional Psychology

- **Functionalism** emerged as an alternative approach to structuralism. This movement was advanced by the likes of **William James**, **G. Stanley Hall**, and **James McKeen Cattell**, and focused on what the mind does as opposed to (the structuralist focus of) what it is. Functionalism opened the door for **comparative psychology**.

- **William James’** *Principles of Psychology*, is widely regarded as one of the most important books ever written on psychology. In it, James proposes that consciousness is not something that can be studied by breaking it down into its component parts. Instead, it must be studied as an ongoing and continuous whole. One of James’ students, **Mary Whiton Calkins**, went on to become the first woman to serve as president of the APA.

- **G. Stanley Hall** created the *American Journal of Psychology* and founded the first psychology lab in America, in 1883, at Johns Hopkins University. Much of Hall’s work focused on child development and education. Hall mentored **Francis Cecil Sumner** who became the first African American to earn a Ph.D. in psychology in the U.S., in 1920.

- **James McKeen Cattell** spent much of his career looking at **individual differences**, most specifically the idea that intelligence is inherited and can be measured. His beliefs about identifying and promoting society’s most intelligent were akin to those in the **eugenics movement** (selective breeding). Cattell’s work sparked much debate about the contributions of genetics and environment to intelligence.
The Growth of Psychology

- Psychology's development was prodigious throughout the first half of the 20th century, supplying the foundation for various points of view. Gestalt psychology, famous for the idea that the whole is greater than the sum of its parts, is a notable example. The Gestalt movement proposed that the mind processes multiple stimuli simultaneously, as opposed to doing so sequentially. Gestalt ideas are often seen as a precursor to the cognitive psychology revolution that took place later in the 20th century.

- The behaviorist movement, championed by psychologists B.F. Skinner and John Watson, focused on what was observable and measurable, thereby rejecting the idea that the mind could be studied. The ultimate goal was to predict and control behavior. Classical conditioning, made famous by Ivan Pavlov, was another behavioral construct that lent credence to the notion that learning and behavior could be studied without studying the mind, or consciousness.

- It wasn't until the 1960's in America that behaviorism began to lose some of its momentum, when people began challenging the idea that a model that neglected mental processes could adequately explain human behavior. This ushered in the era of cognitive psychology, which paid special attention to language and memory, yielding research on flashbulb memory, the tip-of-the-tongue phenomenon, and working memory.

Applied Psychology in America in the 19th and 20th Centuries

- French psychologist Alfred Binet helped to develop intelligence tests that were useful in identifying schoolchildren in need of educational support. His test focused mostly on reasoning and problem-solving tasks.

- Hugo Munsterberg was a pioneer in what is now referred to as industrial/organizational psychology, with his research on employee selection.

- Lightner Witmer was a visionary in clinical and school psychology, creating the first psychological clinic in the U.S., and founding its first journal.

Psychology as a Profession

- As early as 1917, applied psychologists began organizing and standardizing training and licensure. These early efforts eventually led to the formation of the American Association for Applied Psychology (AAAP), in 1930.
• With countless combat veterans returning home from World War II with what was at the time referred to as “shell shock,” there were many more patients needing care than there were mental health professionals to handle them. The National Mental Health Act of 1946 created funding that allowed multiple organizations to create training programs for clinical psychologists.

• In 1949, the scientist-practitioner, or Boulder model, was launched. Nearly 25 years later, the scholar-practitioner model, along with its Psy.D. degree, was born. This model focused more on training clinicians as opposed to researchers.

Psychology and Society

• Historically, psychologists have used science to challenge stereotypes, stigmas, and other ideas that society might take for granted. In 1936, the Society for the Psychological Study of Social Issues (SPSSI) was formed, helping to support research on a myriad of social issues.

• In the early 20th century, Leta S. Hollingworth challenged the idea that women are overemotional in comparison to men, and found that menstruation did not negatively impact women’s abilities on the job.

• The work of African American psychologists Mamie Phipps Clark and her husband, Kenneth Clark, helped to show how segregation negatively impacts the self-esteem of African American children. This research was of chief importance in the famous 1954 Brown v. Board of Education ruling that ended school segregation.

• Evelyn Hooker’s 1957 paper helped to challenge stereotypes of sexual orientation, as it demonstrated no significant differences in psychological adjustment between homosexual and heterosexual men.

Difficult Terms

Behaviorism
Cognitive Psychology
Comparative Psychology
Consciousness
Empiricism
Eugenics
Lecture Frameworks

Overview: It is recommended that you begin this section with a warmup activity that helps student grapple with the importance of history on a more personal level. Once that is concluded, the major points of the module are summarized and can be completed sequentially via lecture. You will notice that many of the sections have “mini-activities” or questions to ask students to keep the learning experience interactive. Finally, there is a choice of activities that can be used to conclude the module.

1st Class Period (50-75 minutes)

• Warmup Activity: One of the more challenging aspects of teaching the history of psychology is trying to get students to understand its relevance. Consider asking students to take 3-5 minutes to write down what others would fail to understand about them without knowing their history. Let students know they won’t be forced to share this information with anyone, but may if they would like to. Once students have completed writing, or the time limit has been reached, engage the class in a group discussion about what they wrote down. The goal of this introductory activity is to get students to engage with their own personal histories in an effort to see how much of the richness of what makes them who they are has come from past experience—the good, the bad, and the ugly experiences alike.
Direct Instruction—Introduction and Prehistory: Now that students have connected on a more personal level with the importance of history, move through the introduction and prehistory sections. It's especially important to emphasize that the majority of the history in this unit is from the mid-19th century on, and that if they move on in psychology, and one day take a History and Systems of Psychology course, it will likely start in ancient Greece.

Direct Instruction and Discussion—Physiology and Psychophysics: Presenting Penrose’s Triangle (see the PowerPoint slides) can be a great way to start this section. Consider asking the follow question as the students look at the triangle: Is perception reality? This discussion can be a great setup for von Helmholtz’s findings (and Locke’s, before him) that our senses can, and sometimes do, deceive us.

Activity—Brain and Mind: The purpose of this activity is to help students distinguish between the brain and the mind, using their own bodies as a way of introducing them to the challenges Wundt and Titchener faced studying the mind. See the Activities/Demonstrations section below for a detailed description.

Direct Instruction and Discussion—Wundt and Scientific Psychology Comes to the U.S.: Emphasize how Edward Titchener brought structuralism, a school of thought pioneered by Wilhelm Wundt, to the United States. This is important because it led to more than 40 laboratories operating in the U.S. by the year 1900. Please refer to the PowerPoint slides for more information.

Direct Instruction and Discussion—Toward a Functional Psychology

- Helping students distinguish between structuralism and functionalism is a crucial objective of this section. Sometimes words mean exactly what students would assume they mean; indeed, that is the case here, with structuralism focusing on the structure, or composition, of the mind, and functionalism focusing on how the mind functions, or what it does.

- Once students have a basic understanding of functionalism, the stage is set to discuss the work of William James, G. Stanley Hall, and James McKeen Cattell, as presented in the slides. When discussing Cattell’s work on individual differences, the PowerPoint slide with pictures of seashells might prove particularly helpful in illustrating how differences can exist within the same species—as this is a concept students sometimes have difficulty grasping just through conversation.
• Direct Instruction and Discussion—The Growth of Psychology

○ When teaching Gestalt psychology it can be helpful to open with the statement, “The whole is greater than the sum of its parts,” and deconstruct this concept with the class. You will find multiple pictures on the PowerPoint slides that provide further assistance with helping students understand these concepts. The picture of rocks illustrates how each rock chipped off from a bigger rock and is now part of a larger whole. The two puzzle pictures will also help you to bring Gestalt psychology to life.

○ One way to begin a discussion on behaviorism is to introduce students to the idea that, if one can't see it, and one can't measure it, it's not worth studying. Consider asking students how that might affect studies of the mind. Once this idea is processed, move through the information on John Watson, B.F. Skinner, and Ivan Pavlov.

○ For the final concept in this section, it can be helpful to ask students about the importance of thinking, or cognition, in understanding human behavior. Students will likely note that thinking is very important. Asking if cognition can be seen and measured (to which students will likely say no) is a nice follow-up question. This then positions students to see why the cognitive approach gained momentum. Students should now be prepared to progress through the additional information in the cognitive section, including flashbulb memory, the tip-of the tongue phenomenon, and working memory.

• Classroom Assessment Technique—The Muddiest Point: The Muddiest Point is one of the simplest CATs to help assess where students are having difficulties. The technique consists of asking students to jot down a quick response to one question: “What was the muddiest point in the [lecture, discussion, homework assignment, film, etc.]?” The term “muddiest” means “most unclear” or “most confusing.”

2nd Class Period (50-75 minutes)

• Discussion and Direction Instruction—Applied Psychology in America

○ Much of this section focuses on intelligence testing. You can start this section by asking students if Intelligence Quotient (IQ) is the same as intelligence. Engaging them in a discussion about how IQ is a social construct designed to approximate intelligence can often prove fruitful. Additionally, it can be helpful to remind students that intelligence is a hypothetical, abstract concept. For example, one's intelligence cannot be determined from drawing one's blood and analyzing it. Once these ideas are wrestled with, students will now be positioned to better understand the work of Binet, Terman, and Munsterberg.
as the section progresses.

- Progress through the slides on Lightner Witmer. It is important to emphasize how he sought to apply experimental psychology in a way that directly helped people. Also, he founded the first psychology clinic and started its first journal, in the U.S. In many ways, he was clinical psychology's "great organizer."

- **Direct Instruction—Psychology as a Profession**

  - The major focus of this section is the impact World War II had on shaping clinical psychology and laying the foundation for the formation of the scientist-practitioner and scholar-practitioner models of training. It might be helpful to show links to the websites of graduate schools that apply each of the aforementioned training models, so that students can see some of the differences.

    - Example webpage for scientist-practitioner: [http://psych.colorado.edu/~clinical/](http://psych.colorado.edu/~clinical/)

  - Showing students modern graduate program websites will help them better appreciate just how important the events discussed in this section were, and continue to be.

- **Direct Instruction: Psychology and Society**

  - This section provides the opportunity to emphasize that psychology doesn't have to be neutral. Said differently, psychologists, through their research and practice, can be agents of social change. Now progress through the slides on Helen Thompson Woolley and Leta S. Hollingworth, Mamie Phipps Clark and Kenneth Clark, and Evelyn Hooker.

- **Toasting the Greats Activity**

  - This activity allows for each student to create a toast to a historical figure of their choosing. See the Activities/Demonstrations section below for a detailed description.

- **Hiring William James Activity**

  - Students will be asked to imagine they are serving on a hiring committee in which they must decide between three of the historical figures discussed in the chapter as the next professor at their institution. See the Activities/Demonstrations section below for a
• Speed Dating Activity

◦ Each student will create a bio of one of the historical figures discussed in the chapter and then interact with every other student in a speed dating fashion. See the Activities/Demonstrations section below for a detailed description.

• Classroom Assessment Technique: The Minute Paper

◦ The Minute Paper tests how students are gaining knowledge, or not. The instructor ends class by asking students to write a brief response to the following questions: “What was the most important thing you learned during this class?” and “What important question remains unanswered?”

Activities & Demonstrations

Brain and Mind Activity

Although some modern neuroscientists argue that brain and mind are one in the same, there is far from universal agreement on this. Emphasize the challenge that Wundt and Titchner were taking on in studying the mind. This can be an engaging way to get students interested in Wundt’s introspection and study of consciousness.

• Time: 1-2 minutes
• Materials: N/A

◦ Directions: For this activity ask students to hold out their right hands and extend their right index fingers. Once all of the students have done this ask them to reach out and touch their brains (or at least the area where their brain is even if they can't actually touch their cerebral cortex). Once sufficient time has been given for all students to complete this, then ask them to reach out with the same finger and touch their minds. You will notice that students respond in a variety of ways (some still touch their heads, some touch their hearts, some look at you hopelessly befuddled, etc.). You can then
note that the brain is a three-pound organ that we can locate in the body and thus tangibly study while the mind is something intangible. Although some modern neuroscientists argue that brain and mind are one in the same, there is far from universal agreement on this. Emphasize the challenge that Wundt and Titchner were taking on in studying the mind. This can be an engaging way to get students interested in Wundt's introspection and study of consciousness.

Toasting the Greats Activity

While this activity was originally designed for higher-level History and Systems courses with a focus on lesser-known historical figures, it can easily be tweaked for an introductory course. In fact, almost all of the people discussed in this module are lesser-known figures to the typical introductory psychology student!

- **Time:** Approximately 15 minutes
- **Materials:** A pen and paper

- **Directions:**

1. Ask each student to pick one person and his or her ideas that they really identified with during the course of this module.

2. Next, have them write a short toast (less than 2 minutes) as if they were honoring the person they chose at a formal dinner or banquet. For example, “Here's to Pinel, who lost his head saving the minds of others” or “Here's to Koffka, who never lost sight of the big picture.”

3. Remind students to be specific in their toasts such that there is a good understanding as to why they are honoring this person and their ideas. If there is time, students can actually write these in class. Students can also be assigned this in between classes and bring it with them to the next class meeting.

4. The activity concludes by having students share their toasts. This can be done with the larger class (for willing students) or in small groups.

Hiring William James Activity
• Time: Approximately 30 minutes
• Materials: Paper or a computer for the students to compose their collective written decision.
• Directions:

1. Students are asked to be part of “search committee” to hire a new professor.
2. Students should be divided into small groups of 3 or 5. Make sure it is an odd number so there cannot be a tie in the voting that is to come.
3. Students are given three names of historical figures discussed in the module and told that these people are finalists for a faculty position at the university the students are attending.
4. Give students 10-15 minutes to discuss the merits of each and tell them once the time has concluded they must arrive at a decision of who to hire and a justification for the hire. It does not have to unanimous and democracy rules!
5. Once time has expired, have the group collectively write no more than 500 words justifying the choice they made.

Speed Dating Activity

• Time: Approximately 30 minutes
• Materials: A pen and notecards
• Directions:

  ○ This exercise can be done as a large group if the class is relatively small or in multiple groups if the class is large.

1. Gather the names of each of the major historical figures discussed in the module and put one name on each notecard. You will have to create multiple sets of notecards if you have a large class and will be dividing the class into groups.
2. Each student in the group is then given a single notecard with the name of one of the historical figures discussed in class.
3. Each student then prepares a short bio, no longer than two to three paragraphs, about the person to whom they were assigned.

4. Now, in a speed-dating format, students spend two minutes exchanging information with one another and then rotate. The end result is that every student eventually talks to every other student thereby exposing them to all of the major people covered in class.

5. The activity concludes by having each student write a brief reflection on who they thought made the most important contribution to the history of psychology, excluding the character they were assigned.

**Additional Activities**


- In this activity students are broken into small groups where they are given clusters of relatively like-minded characters (i.e. Skinner, Watson, Pavlov as behaviorists or William James, G. Stanley Hall, James McKeen Cattell as functionalists, etc.). After sufficient additional research on the characters they have been assigned, students then write a script that involves all of their characters. Game shows, sitcoms, and even a bar with Wundt as the bartender were reported as outcomes in Brooks' paper. This activity is high on creativity, but it will also likely take more time than the activities in the previous section.


- The content in this module provides a wonderful opportunity for debates of various content and scale. Consider breaking students into teams where they debate as if they are the theorists. The instructor can serve as the moderator. For example, consider a debate where a group of students are Edward Titchner and another group are William James debating the merits of structuralism vs. functionalism. Another debate group could be behaviorists vs. cognitive psychologists. This activity will likely require additional preparation and time, but it is a way to get students to dive deeper into the ideas. A simpler approach to this idea that takes less involves breaking students up into pairs and having them debate one another. This is a less formal approach that takes far less time.

- In this classroom exercise groups of students received an intro to Psych textbook from a past decade—spanning from the 1880's until the 1970's. They also received an intro book from the 1990's and compared and contrasted the two texts. The ensuing analysis suggested that the exercise gave students a better overall understanding of core historical content.

**Discussion Points**

1. Why, aside from avoiding repeating the mistakes of the past, is studying the history of psychology a worthwhile endeavor?

   - History helps provide perspective and a deeper appreciation for the ideas of modern psychology. In addition, it creates a greater awareness of how many of the seminal ideas in the field have evolved over time (i.e. structuralism and its influence on the evolution of experimental psychology). Finally, it introduces philosophies or concepts that may have become dormant for various reasons but which have the potential of being reintroduced in a modern context.

2. What are the primary differences between structuralism and functionalism? Which approach do you think is more beneficial to modern psychology? Why?

   - Structuralism focuses on the structure of the mind and breaking down mental processes into component parts, whereas functionalism focuses on the way the mind functions or the purpose of consciousness. Both approaches have strengths and weaknesses and are impactful in their own way. Structuralism influenced the formation of experimental psychology and was the first major school of thought in psychology. Functionalism has had a lasting impact on applied psychology and the emergence of behaviorism.

3. Which of the ideas or historical figures discussed in the module do you believe contributed the most to the field of psychology? Why?

   - This question can be answered in a variety of ways. For example: I believe Lightner Witmer was the most influential figure discussed in the module. He served as “the great organizer” in clinical psychology, founding its first journal and creating the first clinic, in the U.S. Without his contributions, clinical psychology likely would have been set back decades.
Outside Resources

Podcast: History of Psychology Podcast Series
http://www.yorku.ca/christo/podcasts/

Web: Advances in the History of Psychology
http://ahp.apps01.yorku.ca/

Web: Center for the History of Psychology
http://www.uakron.edu/chp

Web: Classics in the History of Psychology
http://psychclassics.yorku.ca/

Web: Psychology's Feminist Voices
http://www.feministvoices.com/

Web: This Week in the History of Psychology
http://www.yorku.ca/christo/podcasts/

Evidence-Based Teaching


- This article looks at how two separate constructs—intelligence and combat stress reduction—have been understood and dealt with historically. The author provides a model for how the history of psychology can illustrate the ways constructs take shape and change in a dynamic field (such as psychology). This work demonstrates how tying historical content to modern ideas can improve retention and understanding of the evolution of ideas.


- Even though this article is 30 years old, it addresses a question that still plagues the teaching of the history of psychology, which is how to integrate the contributions of women. This can be especially challenging in an introductory course where the history section is severely
time-limited and many of the “core” historical figures the instructor is expected to cover are men. This article provides realistic suggestions for how to include women in your teaching of history.


- This is an interview that looks at best practices for teaching the history of psychology in an introductory course. It gives instructors practical ideas for engaging students, such as the use of “critical history” and ways to avoid presentism.

Links to ToPIX Materials

**Books and Films**
http://topix.teachpsych.org/w/page/39234838/History

**Demos, Activities, Lecture Topics, Handouts**
http://topix.teachpsych.org/w/page/19981004/History%20in%20the%20Classroom

**In the News**
http://topix.teachpsych.org/w/page/24891589/History%20in%20the%20News

**Video/Audio**
http://topix.teachpsych.org/w/page/19981003/History%20Videos

Teaching Topics

**Teaching The Most Important Course**
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

**Content Coverage**
Motivating Students

Engaging Large Classes
http://nobaproject.com/documents/4_Engaging_Large_CLASSES.pdf

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com//images/shared/supplement_editions/000/000/150/History%20of%-
20Psychology.ppt?1447374356.
Chapter 2: The Methods of Psychology
2
Research Designs
Instructor Manual
Dr. Regan A. R. Gurung and Dr. Aaron Richmond, Editors
Bethany Fleck, Travis Heath, Kristy Lyons, Aliza Panjwani, Janet Peters
Kasey Powers, Amanda Richmond, Anna Ropp

This unit helps students understand the way psychologists think about and answer questions. Instead of using intuition or instinct, we test research questions using a variety of empirical methods.

In this module, “Research Designs”, students are exposed to the two most common research designs psychologists use: correlations and experiments. This module also introduces students to quasi-experimental designs, surveys, and longitudinal studies. Finally, the Research Designs module concludes with a discussion of the trade-offs between the different approaches to research design.

Learning Objectives

• Relevant APA Learning Objectives (Version 2.0)
  ○ Describe key concepts, principles, and overarching themes in psychology (1.1)
  ○ Describe applications of psychology (1.3)
  ○ Use scientific reasoning to interpret psychological phenomena (2.1)
  ○ Demonstrate psychology information literacy (2.2)
  ○ Engage in innovative and integrative thinking and problem solving (2.3)
  ○ Interpret, design, and conduct basic psychological research (2.4)
  ○ Apply ethical standards to evaluate psychological science and practice (3.1)
  ○ Apply psychological content and skills to career goals (5.1)
• Content Specific Learning Objectives: Research Designs

◦ Understand the difference between correlational and experimental designs.
◦ Understand how to interpret correlations.
◦ Understand how experiments help us to infer causality.
◦ Understand how surveys relate to correlational and experimental research.
◦ Understand what a longitudinal study is.
◦ Understand the strengths and weaknesses of different research designs.

Abstract

Psychologists test research questions using a variety of methods. Most research relies on either correlations or experiments. With correlations, researchers measure variables as they naturally occur in people and compute the degree to which two variables go together. With experiments, researchers actively make changes in one variable and watch for changes in another variable. Experiments allow researchers to make causal inferences. Other types of methods include longitudinal and quasi-experimental designs. Many factors, including practical constraints, determine the type of methods researchers use. Often researchers survey people even though it would be better, but more expensive and time consuming, to track them longitudinally.

Class Design Recommendations

The Research Methods unit is optimally taught over two class periods. This section of the course not only represents a fundamental aspect of the field of psychology, it also includes some of the terms and concepts with the highest levels of difficulty (Gurung & Landrum, 2014). Please also refer to the Noba PowerPoint slides that compliment this outline.

1st class period (50 min – 75 min):

• Overview

◦ Why do we need research? Why is intuition insufficient?
• Correlations
  ◦ Description of Basic Procedures: strength and direction
  ◦ Limitations: Correlation is not causation

2nd class period (50 min – 75 min):

• Experimental Method
  ◦ Concept definitions: operational definitions, independent variable, dependent variable
  ◦ Description of Basic Procedures: control group, random assignment, experimental group
  ◦ Considerations: placebo, confounding variable, participant demands, experimenter expectations
  ◦ Application of Experiments

• Research Methods Considerations
  ◦ Surveys: correlation or experiment
  ◦ Quasi-Experimental designs
  ◦ Longitudinal Studies
  ◦ Understanding trade-offs (Under what circumstances might a correlation or survey be appropriate? An experiment?)

Module Outline

Research Designs

• One of the important steps in scientific inquiry is to test our research questions. However, there are many ways to test hypotheses in psychological research. Which of these methods you choose to use will depend on the type of questions being asked and the availability of
resources. Most psychological research can be divided into two types: experimental and correlational research. All methods have their strengths and limitations.

- The goal of this chapter is to introduce students to the different ways that psychological researchers answer questions. The bulk of the chapter is dedicated to explaining experiments and correlations, while other types of design, such as quasi-experiments, longitudinal studies, and surveys are briefly introduced.

- The chapter ends with an explanation of the trade-offs associated with the varying research designs as well as a discussion of why empirical research is important to the field.

Experimental Research

- Experiments are the first research design students are introduced to via a description of a happiness study (participants were given $20 and then told they had to spend the money by the end of the day. Some participants were told they must spend the money on themselves and some were told they must spend the money on others). The author then uses that experiment to introduce concepts such as operational definitions (i.e., how do we define happiness?), independent variables (i.e., spending choices), and dependent variables (i.e., happiness).

- The happiness experiment is also used to demonstrate the importance of random assignment in experiments – what if someone dropped their toast that morning and it ruined their whole day? The author uses that example to explain how random assignment makes it so that the groups on average are similar on all characteristics except what the experimenter manipulates. In closing, the author explains that random assignment is critical to experimentation because if the only way in which the two groups differ is on the independent variable, then we can make the inference that the independent variable is what causes any observable differences between the two groups.

- In the last part of this section, the author very briefly describes other considerations researchers must think through before running an experiment, such as, confounds (things that could undermine your ability to draw causal inferences), the placebo effect (knowing that one is getting special treatment or something new is sometimes enough to actually cause changes in human behavior), participant demand (participants try to behave in way that they think the experimenter wants), and experimenter expectations (experimenter inadvertently influences the outcome of the outcome of the study).

Correlational Designs
Once students have read about and understand what an experiment is, the author explains that correlations are a way for scientists to passively observe and measure their phenomena (as opposed to manipulating variables, like in experiments). Further (and importantly!), when we use this method, we are able to see patterns that go together, but we usually cannot infer what causes what.

After the basic overview described above, the chapter goes into more details about correlations. First, the author introduces students to scatterplots, a graphical representation of the relation between the scores on two variables. This helps students visualize the relationship between variables, which makes the strength and direction of correlations easier to understand (discussed next). In terms of direction, the author describes what positive and negative correlations are and how the variables relate to each other (e.g., as one increases, the other decreases). In terms of strength, the author talks about the absolute value of the correlation: the larger the absolute value, the stronger the correlation; the closer the absolute value is to zero, the weaker the correlation.

Finally, the author wraps up the correlation section with the drawback of using correlations, such as the lack of causality (e.g., the relationship could be due to a third variable or the relationship could be opposite of what was proposed).

Quasi-Experimental Design

What if we want to study an independent variable that cannot ethically or practically be manipulated (e.g., marriage status, gender, race, etc.)? In a Quasi-Experimental Design, we rely on existing group memberships (e.g., married vs. single), and we treat these as independent variables even though we did not assign people to those conditions and we did not manipulate those variables. The drawback is that causal inference is more difficult with quasi-experimental designs that with purely experimental designs.

Longitudinal Designs

In Longitudinal Designs, we follow the same people over a longer period of time and measure them several times. This design approach provides valuable evidence for testing many theories in psychology, but they can be quite costly to conduct, especially if they follow many people for many years.

Surveys
• Surveys gather information by the use of questionnaires. Their main strength is that they can reach a larger audience and tend to be cheaper. Although surveys are typically used for correlational research, this is not always the case (surveys can be used in experiments)

Trade-offs in Research

• Every method has a set of trade-offs. Factors in selecting research method include whether or not the method appropriate to answer the research question and what resources (time and money) you have available for completing the study.

Research Methods: Why You Need Them

• The strength of a scientific finding lies in the strength of its methodology. Therefore, in order to be a savvy consumer of research, students need to understand the pros and cons of different methods and the distinctions among them.

Difficult Terms

Confounds
Correlation
Correlation Coefficient
Dependent Variable
Direction
Experimenter Expectations
Independent variable
Longitudinal Design
Operational Definitions
Participant Demand
Placebo Effect
Quasi-Experimental Design
Random Assignment
Scatterplot
Strength
Lecture Frameworks

Overview

What are your goals for teaching this class? One of the most important goals for Introductory Psychology is to help students become better consumers of research. We not only want to teach students the information, but we want to do so in a way that is useful for them. In many ways, research methods are a fundamental part of psychology. The more time we take to ensure students ‘get it,’ the better. Plus, since some students tend to have a bias about this unit (they tend to assume methods are boring) the more you can apply the material, the better!

First Class Period:

Correlations

• Discussion/Warm-Up

  ◦ Consider starting class off with examples of correlations that students might find stimulating or that captures their interest (e.g. the more educated a female is, the fewer children she is likely to have; The less time students spend on Facebook, the higher their grades tend to be; The more attractive you are, the more phone numbers you get).

• Lecture

  ◦ Discuss relationships between variables. After giving them two variables and discussing how they are related (as in the examples above), you can explain that the relationships you were just talking about can actually be represented with a single number (the correlation coefficient). We like this order (examples before terms) because it helps students understand the concept behind correlations before you scare them with numbers (of course, not all students are scared of numbers, but many are!).

  ◦ So the first piece of the number you can talk about is direction – that correlations can be positive or negative. Explain what this means and give them three examples of each. Next, talk about strength, making sure to emphasize that a negative number does not mean a weak correlation! Here, try to give them examples of strong correlations (e.g., as temperature drops, the number of clothes worn increases) and weak correlations (e.g., agreeableness and education). This can be tough for students, so try to give them lots of practice questions and examples!
Activity – Practice Makes perfect

- Allow students to take a turn practicing

Additional Information

- Once they get the hang of identifying the strength and direction of correlations, you can start on the Correlation is NOT Causation mantra. To begin, you can use the silly example of the relationship between ice cream sales and shark attacks (let them know that yes, this is a true correlation!). We then ask them if eating ice cream will make them more likely to be bitten by a shark. The students can correctly guess that no, eating ice cream will not make you more likely to be bitten by a shark; it is easy for them to figure out that both variables are being caused by warm summer temperatures. This example is a good way to start because the presence of a 3rd variable is so obvious, students can easily wrap their heads around it.

- You can then use other, more difficult examples - examples where it’s not necessarily intuitive if A causes B or if B causes A (or if there is a 3rd variable). To demonstrate how people get tricked by correlations, you can use an example found in a news article a few years ago, which claimed that Facebook caused depression in teenagers. The article cautions parents about the use of Facebook and other social media, even suggesting that parents have their kids suspend their accounts. We like using this article because it delivers two points – the first is that we have to be careful about the causal inferences we make, and the second is to be wary of how the popular press can twist research. You can start this discussion off by telling them a little about the research – researchers emailed teenagers with Facebook accounts and asked them two questions: How often do you feel depressed? How often do you use Facebook? After giving students this basic background, give them a few minutes to think about other possible explanations that could explain the relationship between Facebook use and depression. Inevitably, students always come up with alternative hypotheses (it might be that teenagers who experience depression try to fill the void with Facebook). You can also use this to more formally introduce the concept of third variables – an alternative hypothesis is that having no friends at school leads teenagers to feeling depressed and also to spend more time on Facebook (since they aren't spending time with friends). An example of the slide you can show in class is below.
• Discussion/warm-up

  ○ You can start off experimental research by asking students a few questions: Can pills make you smarter? Is the newest trend in exercise (right now it’s Cross Fit) more effective than other types of exercise? Is therapy effective in treating patients? Ask students these questions and then ask them how they know – are they guessing? Have they read research? This kicks off the discussion of experiments; we want know without a doubt that A causes B.

• Lecture

  ○ After your informal introduction, you can introduce students to independent and dependent variables. After explaining/defining what they are, go back and identify the IVs and DVs in all the questions you just asked them (e.g., in the first question, Pills are the IV and intelligence is the DV; in the second question, Cross Fit is the IV and health/weight/BMI is the DV; in the third question, therapy is the IV and patient success is the DV). This gets them starting to apply their newly learned definitions of the IV and DV. After they get the hang of identifying the IV and DV, make it a little more complicated – they have to brainstorm how they would manipulate the IV in each of the scenarios (e.g., we could test Cross Fit against weight lifting classes, cardio classes, water aerobics classes, etc.). This leads to the natural progression of talking about experimental groups vs. control groups. Because this begins to get confusing for students, we try to offer as
many examples as possible.

- Once they’ve mastered identifying IVs and DVs, start to explain how experiments provide us with causal inferences. Because they have already talked about independent variables, it’s easy to talk about the importance of manipulating the independent variable. After that, you can follow up with random selection and assignment.

- Activity – Real World Data Collection
- Special Topic: Evaluating Research Methods in Popular Media

- For many students, the topic of research methods can be quite dry – we can’t think of any students that take Intro to Psychology because they want to learn about research methods (we are sure there are some students out there – we just haven’t met them yet!). This can provide a challenge to instructors, especially new instructors. Therefore, to help make research methods more interesting, you should continually show the application of research methods. From a students’ perspective, why should they care? Very few are going to go into research, so why is it important for them to learn about experiments, correlations, random assignment, etc.? This is where you come in! You can show them how research methods infiltrate everything we do – from the stories we see on the news to the best parenting practices.

- SO….how do you get them interested? One way to help them understand how important the inferences we make from research are, we always incorporate current events and popular culture into class discussion and activities. For example, popular media is always making some sort of claim – Having friends makes you fat! Being single linked to obesity! People who chew gum more likely to want revenge! You get the idea…

- As an instructor, you can use these [sometimes ridiculous] claims to your advantage. What better way to help students be better consumers of research than to talk about and let them practice evaluating popular press articles? Find a few articles that make claims based on research and have the class use what they have learned (causation, operationalization, random assignment, random selection generalizability, etc.) as criteria for evaluation. When evaluated, can we trust the claims the articles are making? What research methods did they use? Were those appropriate to answer their research question? What could the authors have done differently/better?
Real World Data Collection: In or Out of Class Activity

This activity can be done during class or assigned as an out of class project/homework. In this activity, students answer one research question using different research methods.

Time
60 minutes

Materials
Thorough directions, public location, paper, pen

Directions
First, a research question must be selected by the students or assigned by you. The important feature of the research question is that it can be answered on campus with the student body available.

Some examples you might consider: Where do students prefer to buy their lunch on campus (campus dining, McDonalds, Panda Express, campus convenience store, etc.)? Do psychology students prefer to study alone or in groups? Are more students late to Psychology classes or Chemistry classes?

• Once the research question is selected/assigned, students (either alone or in groups) set out to answer that question using different research designs (e.g., create an experiment, use naturalistic observation, create a survey, etc.).

○ For the experiment, the students can just write it up (they don't need to execute it). They should identify the procedures (random selection and assignment, experimental and control groups, levels of the independent variable, etc.)

○ For the survey, they could give a 5-item survey to 10 people and collect the results (great way to practice mean, median, mode, etc. if you have included that)

○ For the naturalistic observation, have them spend 20 minutes observing behavior in the appropriate location (student center, library, etc.)

• Once they have completed the assignment individually or in groups, come back together as a class for discussion. Different groups will have differing operational definitions, proposed different experiments, asked different questions on the surveys, and possibly had different results.

Practice Makes Perfect: In-Class Activity
For this in-class activity, students are given practice scenarios and they apply what they have learned by identifying components of experiments, the strength and direction of correlations, and creating their own experiments.

Time 10-15 minutes

Materials Handout

Directions Students can work on this individually or in groups (your discretion). Handout the worksheet and give students sufficient time to complete the worksheet. Once students are done, you can go over the answers to make sure they understand the content.

Build a Study: In-Class Activity

For many students, this is their first exposure to correlation coefficients, independent variables, and other advanced terminology. Therefore, it's important that you give students a chance to practice what they have learned. For this in-class activity, students are divided into groups, given a research questions prompt (in this example: Does exercise improve mood?), and asked to design several different types of studies using the concepts learned in class and from the book.

Time 10-15 minutes

Materials Research Designs class slides (pictured below)

Directions Students can work on this individually or in groups (your discretion). Project the slide with directions on the overhead and give students sufficient time to complete the activity.

• Design a correlational study to address question
• Design a quasi-experimental study to address question
• What materials will you need?
• What measures will you use?
• How much time will it take?
• How will data be collected?
• Discuss strengths, weaknesses, and problems with each design.
Once students are done, you can go over the answers to make sure they understand the content.

Activity: Build a Study

Tasks
- Get into groups
- Answer the question, “Does exercise improve mood?”

Instructions
- Design a correlational study to address question.
- Design a quasi-experimental study to address question.
- What materials will you need?
- What measures will you use?
- How much time will it take?
- How will data be collected?
- Discuss strengths, weaknesses, and problems with each design.

Additional Activities


- This author presents an approach to teaching research methodology that emphasizes critical thinking and the ability to evaluate research evidence. The emphasis is on the introductory psychology student, but the specific activities mentioned could also be used in conjunction with a research methods course. You must present statistical concepts before or in conjunction with this activity, and you will need to provide handouts that structure the critical analysis of the research. The appropriate class size is limited only by the number of two- or three-page papers you want to read. Students read the articles and write the papers outside class, with in-class discussion.


- The authors describe a class exercise based on the Barnum effect, to effectively demonstrate the importance of the scientific method. Although demonstrations of the
Barnum effect are popular, this article specifically illustrates how students’ attitudes about pseudoscience change after receiving one-size-fits-all personality ratings, and then again after debriefing.


- This article describes how to use clips from the popular TV show, Mythbusters, to demonstrate the use of research methods in answering empirical questions. The authors discuss efficacy of the exercise as well as student enjoyment.


- This activity is an icebreaker that can be used with classes of any size at any level. It is a good activity to use on the first day of class. No prior knowledge is required of students and no advance preparation by the instructor is needed. The activity familiarizes students with several terms relevant throughout the course. This activity can also be used to introduce methodology. One of the biggest frustrations faced by those teaching large sections of psychology courses (e.g., introductory psychology) is getting students to overcome their apprehension about speaking up in class. The purpose of this activity is to present a demonstration designed to establish a norm of class participation during the first class meeting while introducing some basic principles of research methodology. On the basis of the irrational belief held by many students that speaking up in class will "kill" them, this demonstration uses a very simple pretest-posttest design to test in a rational manner this irrational belief right before the students' eyes.


- This article describes an activity that can help students (a) understand how the research process influences the outcomes of that research and (b) appreciate the media's limitations of reporting research findings. Students read about research reported in an online newspaper and in a scholarly journal and responded to questions that guided their critique of the research methods and their comparison of the 2 sources. Quantitative and qualitative evaluations suggested that this activity can help students understand the impact of research procedures on a study's findings and to appreciate the limitations in the reporting
of such findings from mainstream media sources.


- Critical thinking involves an assessment of how we determine the truthfulness of information we encounter. As they evaluate urban legends, this activity encourages students to think critically about the way they make decisions about truth. The activity can also be used to launch a discussion of the value various cultures place on ways of knowing. This is an out-of-class activity that involves all students and can be used with any size class.


- This article describes a classroom activity that encourages students to think about the difference between correlation and causation, third variable issues, and interpretation of line graphs.


- This activity is a vehicle for discussing the relations among experimental research, correlational research, and causal inferences at an introductory level. Students need a basic understanding of experimental and nonexperimental research methods, as well as positive and negative correlation coefficients. No advance preparation is needed, unless you wish to present the instructions for the research proposals as a handout or PowerPoint presentation. This is appropriate for any size of class and can be completed by students either in or outside of class.


- The authors describe a free Macintosh® program suitable for use in introductory psychology as well as more advanced classes such as statistics or research methods. The program, called the Correlator, helps students to distinguish between positive and negative correlation coefficients and to understand the differences between correlation coefficients of different sizes. The authors performed several small studies to assess whether the
Correlator aided student learning. In the first, 9 class members completed a voluntary, anonymous survey. Another study found that 28 students who completed the Correlator for extra credit scored higher on the subsequent exam. In another, 36 students who used the Correlator scored higher on the correlation questions than the no-Correlator class. It was concluded that students completing the Correlator better understand correlation coefficients.


- Describes a classroom activity designed to test an astrological hypothesis that can help teach introductory psychology students about research design and data interpretation. The activity illustrates differences between science and nonscience, the role of theory in developing and testing hypotheses, making comparisons among groups, probability and statistical significance, and the complications involved in interpreting research data.

Outside Resources

**Article:** Harker and Keltner study of yearbook photographs and marriage
http://psycnet.apa.org/journals/psp/80/1/112/

**Article:** Spending money on others promotes happiness. Elizabeth Dunn's research
https://www.sciencemag.org/content/319/5870/1687.abstract

**Article:** What makes a life good?
http://psycnet.apa.org/journals/psp/75/1/156/

**Article:** Rich Lucas's longitudinal study on the effects of marriage on happiness
http://psycnet.apa.org/journals/psp/84/3/527/

Evidence-Based Teaching

assessing critical thinking skills for argument analysis in psychology. Teaching Of Psychology, 37(2), 91-96. doi:10.1080/00986281003626656

- Critical thinking is a valued educational outcome; however, little is known about whether psychology courses, especially ones such as research methods courses that might be expected to promote critical thinking skills, actually improve them. The researchers compared the acquisition of critical thinking skills for analyzing psychological arguments in 3 groups of research methods students, 1 getting critical thinking skills infused directly into their course and 2 other groups getting no explicit critical thinking skills instruction. They found that the group receiving explicit critical thinking skills instruction showed significantly greater gains in their argument analysis skills than the groups receiving no explicit critical thinking instruction. These results support the effectiveness of explicitly teaching critical thinking skills infused directly into regular course instruction.


- Instructors of undergraduate research methods can introduce diverse perspectives into their courses through expanding learning units on research ethics to include extensive discussions on the responsibilities of the researcher. The author provides suggestions for teaching strategies that promote multiculturalism while avoiding a deficit research perspective.


- A multifaceted approach to teaching five experimental designs in a research methodology course was tested. Participants included 70 students enrolled in an experimental research methods course in the semester both before and after the implementation of instructional change. When using a multifaceted approach to teaching research methods that included both active learning and a form of scaffolding, students reported a greater efficacy in APA style writing, a higher perceived utility of research and statistics, better attitudes toward statistics, and higher perceived skills/abilities in statistics. This approach benefitted students’ perception of an often disliked subject area in psychology.

• This study examined the effects that exposure to research methodology coursework has on students’ interests in scientist and practitioner activities. Consistent with previous research, there was a positive correlation between scientific and practitioner interests. Exposure to instruction in research methods was associated with a loss of interest in scientific activities even for students who had strong interests in scientific occupations.


• Students completed surveys at the beginning and end of a sophomore-level course on research and statistics. Researchers hypothesized that the course would produce advances in knowledge of research and statistics and that those changes would be accompanied by more favorable attitudes toward the subject matter. Results showed that knowledge did increase significantly, but 4 of 6 attitude measures showed no change. Two attitude measures (perceived utility of research and statistics) showed significant declines. These results demonstrate the independence of knowledge and attitudes and show that attitudinal change is not monolithic. Thus, students’ misconceptions about research might underlie the declines in perceived utility of research and statistics.

**Suggestions from the Society for Teaching’s Introductory Psychology Primer**


**POSSIBLE ASSESSMENTS (Out of Class)**

Popular News Assignment:
• Students are tasked with finding a popular news report (print, radio, TV) of an empirical psychology study. Students must identify the research design (experimental or correlational), the hypothesis, operational definitions, and main conclusions. Finally, students are asked to think critically about possible third variables or biases that could limit the conclusions of the researchers. Sometimes students report difficulty in finding popular press reports of psychological studies, so be prepared to suggest possible sources (LO 2.2).

Mini-Research Project:

• For this assignment, instructors should compile a list of easily assessed quantitative variables (height, weight, GPA, number of Facebook friends, time spent studying, number of alcoholic drinks per week, etc.). Ask students to sample 10 people, collecting data on 2 variables of their choice. Students then must plot their data on a scatterplot and visually assess whether a correlation is present. In a brief paper, students must estimate the strength and valence of the correlation, as well as identify possible third variables that could be influencing the relationship (or lack thereof). Students could also discuss sampling issues, non-representativeness, etc. Students should then design an experimental study to test whether there is a causal relationship between the two variables assessed. The data collection part of this assignment is engaging for students, but the more difficult critique and research design portions may be frustrating for beginning psychology students. As an instructor, be sure to scaffold the assignment as needed (LO 1.1a, 1.3a, 2.2).

Belief in Popular Myths:

• For this short paper, students should pick a pseudo-scientific myth, perhaps from Lilienfield et al. (2009) or another similar source. Students should survey 10 people to assess their belief in the myth. In a short paper, students should present their results, use their critical thinking skills to dispel the myth, and discuss why scientific research is necessary. Students often come into class believing various pseudo-scientific myths, and this can be a good way to introduce the course and underscore the importance of scientific psychological research (LO 1.1a, 1.3a).

ACTIVITIES & TECHNIQUES (In Class)

Dueling Proverbs:

• This activity is based on an excerpt from David Myers’ Social Psychology, 9th edition (2008)
in which Myers presents proverbs or common sayings that directly contradict each other. For example, he lists “birds of a feather flock together” and “opposites attract.” Ask half of the class to close their eyes and show the remaining half one of the proverbs/sayings (this could be done using powerpoint or written lists could be passed out). Ask them to think about whether they agree with the saying. Next, switch and show the other half of the class the opposite proverb and again ask them to think about whether or not they agree. Finally ask the entire class to raise their hands if they agreed with the proverb they were shown. Generally the majority of the class raises their hands. After showing the entire class both proverbs, the instructor can begin a discussion about common sense vs. scientific findings, the importance of scientific research, etc. (LO 1.1a, 2.1).


Guessing Correlations:

- Provide students with pairs of variables and ask them to guess the strength and valence of the relationships. For example, ask them to guess the correlation between age and height, weight and reading ability, temperature and thickness of jacket worn, number of churches and number of liquor stores in a town, etc. Instructors should provide a range of possible correlations, indicating positive, negative, and no relationship, as well as weak and strong relationships. If students indicate no relationship between 2 variables, ask them to imagine that there is a strong correlation and guess what third variable could be driving that correlation. For example, can you think of a third variable that could affecting both weight and reading ability? Depending on the time allotted, instructors could also bring up linear versus curvilinear relationships, and the inability to determine direction with correlational research. This is a quick and easy activity to put together and can occupy as much or as little class time as you would like. The more creative the relationships between variables, the more fun students will have determining the nature of those relationships (LO 2.2).

Design Two Studies:

- To illustrate the difference between correlational and experimental research, yet demonstrate that most research questions are amenable to both types of design, break students up into small groups and give them a research question. Instructors can choose the practicality versus creativity of the prompts (e.g., “does caffeine improve studying?” versus “does moving in a zig-zag pattern increase your likelihood of outrunning a rhino?”). Students must come up with both an experimental and a correlational study to address the assigned research question. Depending on the scope of the lesson and time allotted,
instructors could also students to develop specific hypotheses, operational definitions of the relevant variables, etc.). If desired, students could discuss their ideas with the entire class or even engage in “pop presentations,” in which students are given 5 to 10 minutes (and appropriate blackboard/easel space to draw) to create a brief presentation of their ideas. At first, students can be stumped if they have not yet been exposed to much psychological research; circulate through the room and help student groups come up with initial ideas (LO 1.3a, 2.2).

Class IRB:

- Many instructors teach ethics in research methods by showing students classic studies in psychology that contain ethical questions (e.g., Milgram’s studies, Stanford Prison Study, etc.). While these studies are exciting and can certainly foster good discussion, Intro Psych students may not yet have the background (in Week 2 of the course) to understand that those studies are not representative of typical current research methods. As an alternative, the instructor can create brief one-paragraph descriptions of research that have been “submitted” to an IRB. In groups, students can act as an IRB and evaluate each proposal, discuss the ethical considerations, and decide whether or not to approve the research. Depending on what issues the instructor would like to emphasize, the “proposals” could highlight issues of deception, un-informed consent, experimenter bias, undue stress to the participant, confidentiality of data, and even standards of care for lab animals. After students have discussed in groups, bring the entire class together as one large IRB and discuss whether to approve each proposal. This activity is more successful when the ethical issues in the scenarios are subtle enough to spark debate rather than clear ethical violations that leave little room for student discussion (LO 1.2e).

Links to ToPIX Materials

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19981034/Research%20Methods%20in%20the%20Classroom

Current events/ news:
http://topix.teachpsych.org/w/page/23075273/Research%20Methods%20in%20the%20News

Video/audio:
Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at
Chapter 3: Biological Psychology
This module covers a range of concepts, including understanding the development of two parts of the nervous system: peripheral and central nervous systems. The lion’s share of the focus is on the latter as there are many terms and concepts related to the various divisions and structures of the central nervous system, including the brain. This module also briefly looks at neurons and neural networks. Finally, this module also offers information on the various techniques used to study the brain.

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology's content domains (1.2)
  - Describe applications of psychology (1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
  - Demonstrate psychology information literacy (2.2)
  - Build and enhance interpersonal relationships (3.2)
  - Adopt values that build community at local, national, and global levels (3.3)

- Content Specific Learning Objectives: The Brain
  - Name and describe the basic function of the brain stem, cerebellum, and cerebral hemispheres.
○ Name and describe the basic function of the four cerebral lobes: occipital, temporal, parietal, and frontal cortex.

○ Describe a split-brain patient and at least two important aspects of brain function that these patients reveal.

○ Name and describe the most common approaches to studying the human brain.

○ Distinguish among four neuroimaging methods: PET, MRI, fMRI, EEG, and CAT.

○ Describe the difference between spatial and temporal resolution with regard to brain function.

**Content Specific Learning Objectives: The Nervous System**

○ Describe the reasons for studying different nervous systems in animals other than human beings.

○ Explain what lessons we learn from the evolutionary history of this organ.

○ Describe and understand the development of the nervous system.

○ Learn and understand the two important parts of the nervous system.

○ Explain the two systems in the peripheral nervous system and what you know about the different regions and areas of the central nervous system.

○ Learn and describe different techniques of studying the nervous system.

○ Understand which of these techniques are important for cognitive neuroscientists.

**Abstract**

1. THE BRAIN: The human brain is responsible for all behaviors, thoughts, and experiences described in this textbook. This module provides an introductory overview of the brain, including some basic neuroanatomy, some basic descriptions of functions of the brain, and brief descriptions of the neuroscience methods used to study it. 2. THE NERVOUS SYSTEM: The mammalian nervous system is a complex biological organ, which enables many animals including humans to function in a coordinated fashion. The original design of this system is preserved across many animals through evolution; thus, adaptive physiological and behavioral functions are similar across many animal species. Studying the development of the nervous system in a growing human provides a wealth of information about the change in its form and behaviors that result from this change. The nervous system is divided into central and
peripheral nervous systems, and the two heavily interact with one another. The peripheral nervous system controls volitional (somatic nervous system) and nonvolitional (autonomic nervous system) behaviors using cranial and spinal nerves. The central nervous system is divided into forebrain, midbrain, and hindbrain, and each division performs a variety of tasks; for example, the cerebral cortex in the forebrain houses sensory, motor, and associative areas that gather sensory information, process information for perception and memory, and produce responses based on incoming and inherent information. To study the brain, a number of methods have evolved over time; and each of these has certain strengths and limitations.

Class Design Recommendations

This module can be taught in one 60-minute class, or two shorter class periods (45 to 60 minutes). If it is taught in two class periods, we suggest using one period for overview and the peripheral nervous system and the other period for the central nervous system, neurons, and the anatomy and functions of various parts of the brain. Please also refer to the Noba PowerPoint slides that complement this instructor’s manual.

Overview

• Warm-Up Activity: Just Noticeable Differences
• Brain Development
• The Central Nervous System:
• The Peripheral Nervous System
• Studying the Brain

Module Outline

What Can We Learn about the Human Brain From Other Animals?

• The human brain evolved from the brains of invertebrates and single-celled organisms. Many animals display non-verbal behaviors that are similar to humans. However, human
non-verbal communication is more complex. The more complex the behavior, the more complex the nervous system. If we compare Homo habilis to Homo sapiens, we find that the former used crude stone tools compared to the tools used by Homo sapiens to build civilizations and cities.

How Does the Nervous System Develop?

- The nervous tissue that forms the brain develops over the course of gestation:

- As the embryo continues to develop, so does the neural tube. It balloons up rostrally (towards the head). At day 40, we can see clear distinctions of the forebrain, midbrain, hindbrain and the spinal cord. By 50 and 100 days the cerebral hemispheres are developing, and thereafter they cover the majority of the brain area.

What is the Structure of the Central Nervous System?

- What is the Brain Stem? Often referred to as the trunk of the brain, the brain stem is responsible for many of our basic survival functions (e.g., respiration, heart rate, digestion), sleep-wake cycles, growth and other hormonal behaviors as well as sensory and motor functions. Severe damage to a brain stem can necessitate the need for ‘life support’ as the patient is unable to breathe on his or her own. Collectively, the brain stem refers to the following structures: medulla, pons, midbrain, and diencephalon (which refers to thalamus and hypothalamus). Note that this depth of brain anatomy is not explicitly presented in the module.

Our nervous system is divided into main parts: the peripheral and central nervous system.

Central Nervous System (CNS).

This portion of the module is structured in a way that focuses on the “micro” and expands out toward the “macro.” This means we begin our exploration with individual neurons and the communication of neurons across the synaptic gap. From there we “zoom out” to the anatomy of the brain and the various specific functions according to brain geography.

*Neurons*—are individual brain cells. They connect to one another to form “pathways” (or neural pathways) by which the brain sends electro-chemical signals. This activity is at the core of all thinking, remembering, processing, reacting and all of the other functions of the nervous
system. Neurons work as electric-chemical charges build up until they reach a critical threshold; after which they “fire” down the axon to the next neuron.

The brain—Below are two specific ways of understanding and organizing the parts of the brain. First, the brain can be divided as follows (please note that the “encephalon” vocabulary is not presented in the module; Noba has favored simpler vocabulary for this module. A more sophisticated view can be found in the individual modules on The Brain and on The Nervous System, respectively):

1. Forebrain – The forebrain is the forward-most portion of the brain. It consists of the telencephalon and diencephalon.

2. Midbrain – The midbrain is the smallest region of the central nervous system and acts as a relay station for visual and auditory information. The midbrain is also referred to as the mesencephalon.

3. Hindbrain – The hindbrain is the rear lower portion of the brain and is comprised of the metencephalon and myelencephalon.

What is the Limbic System? Located beneath the cerebrum, the limbic system is a collective name for structures involved in emotion, motivation, and emotional associations with memory. It primarily refers to these structures: amygdala, hippocampus, thalamus, hypothalamus, basal ganglia and cingulate gyrus. The thalamus and hypothalamus have already been defined elsewhere.

- **Amygdala**– is an almond-shaped set of neurons that is part of the limbic system and located in the temporal lobe. It is involved in processing and expression of arousal and emotions like anger and fear.

- **Basal ganglia**– refers to a group of nuclei lying deep in the frontal lobes and is part of the limbic system. It is involved in voluntary movement and coordination.

- **Cingulate gyrus**– is a component of the limbic system that lies just above the corpus callosum. It is responsible for directing attention to emotionally significant events for associating memories to smells and pain.

Another way to parse apart the regions of the brain is by focusing on hemispheres and lobes:

1. Cerebral Hemispheres – The cerebral cortex is divided into left and right hemisphere and
connected by a dense bundle of white matter tracts known as the corpus callosum. There are some functions that are lateralized, or primarily under the control of one hemisphere. Both hemispheres, on the other hand, control motor and sensory functions, although the sensory and motor cortices have a contralateral representation. Split-brain patients are people whose two cerebral hemispheres are not connected via the corpus callosum as a result of surgery or genetic abnormality. Studying these patients helps us understand the function of the two hemispheres.

The cerebrum can further be divided into four lobes:

Parietal lobe– This is an area of the cerebrum at the top of the head, but towards the back, and is involved with somatosensory and gustatory sensation. The parietal lobe includes the somatosensory strip, which is like a map of the entire body and receives input from the skin and muscles. The parietal lobe also contains the gustation strip, or the second somatosensory cortex, which is involved with our experiences of taste.

Temporal lobe– This area contains the primary auditory and olfactory cortices, brain regions devoted to hearing and smell, respectively. Proximally located to these areas is Wernicke's area, which is responsible for language comprehension and is connected to Broca's area. Damage to Wernicke's area can result in agnosia, or an inability to understand or recognize speech.

Occipital lobe– The occipital lobe is located in the back of the cerebrum and houses the primary visual cortex, which is responsible for vision.

Frontal lobe – This region of the cerebrum closest to the forehead. In the left frontal lobe, you will find Broca's area, a brain area responsible for language production. The frontal lobe is also involved with central and executive functions, such as working memory.

Motor Strip – Additionally, the frontal lobe contains the motor strip, which is like a representation of the entire body, and is responsible for voluntary movement.

This may be a natural stopping point for a single class presentation.

Peripheral Nervous System

The peripheral nervous system (PNS) is divided into two systems:
- **Autonomic nervous systems (ANS)** – The ANS is primarily responsible for involuntary functions. It is further divided into the following systems, which work in tandem to regulate our “fight-or-flight” response:
  - Sympathetic – the sympathetic nervous system is responsible for energizing muscles and glands, causing the release of hormones and energy.
  - Parasympathetic – the parasympathetic nervous system is responsible for conserving energy and reducing the muscle and gland activity.

- **Somatic nervous system (SNS)** – The SNS is under the control of the individual, allowing humans to maneuver their own body muscles. The SNS consists of 12 pairs of cranial and 31 pairs of spinal nerves.

**What Techniques Do Scientists Use to Study the Nervous System?**

- The first scientific attempt to study brain functions began with phrenology in the 19th century, which posited that the various bumps and indentations on the skull reveal our mental abilities and personality traits. Phrenology has since been proven false, however, its birth led to the idea that different areas of the brain are responsible for varying functions.

**Brain Imaging Techniques**

- **Electroencephalograph (EEG)** measures electrical activity in the brain through the placement of a series of electrodes on the scalp.

- **Computerized axial tomography (CAT) and Magnetic Resonance Imaging (MRI)** are modern noninvasive techniques used to capture pictures of detailed structures in the brain by using X-rays or magnetic energy, respectively.

- **Positive Emission Tomography (PET)** is an invasive procedure in which an individual’s brain is injected with radio-labeled isotopes. The isotopes enter the active nerve cells and emit positrons, which help record blood flow in various brain regions to help scientists assess which areas were active during a given task.

- **Functional Magnetic Resonance Imaging Techniques, (fMRIs)** are noninvasive brain
imaging techniques that visibly document changes in blood flow to areas of the brain during a task. fMRIs and PET scans have decent spatial resolution, but cannot tell us when brain activity occurred.

- **Diffuse Optical Imaging (DOI)** directs infrared light into the brain and measures the light that comes back out. As the properties of light change when it passes through oxygenated blood or active neurons, they can indicate which brain areas were engaged in a particular task. Importantly, the DOI can be set-up to have high temporal and spatial resolution.

***Note on the Difficult Terms in this Module: This module is unusual for the sheer volume of new and often difficult vocabulary words. It may be especially helpful for students to create study aids such as flashcards to help learn this new vocabulary. They may find it helpful if you define each term repeatedly when using it in lecture. We recommend openly addressing the potentially daunting amount of vocabulary and reassuring students that with effort and repetition they can learn it.

**Difficult Terms**

- Action potential
- Autonomic nervous system
- Axon
- Brain stem
- Broca's area
- Central Nervous System
- Cerebellum
- Cerebral hemispheres
- Cerebrum
- Computerized axial tomography (CAT)
- Contralateral
- Corpus Callosum
- Dendrites
- Diffuse Optical Imaging (DOI)
- Electroencephalography (EEG)
- Forebrain
Frontal lobe
Functional magnetic resonance imaging (fMRI)
Hindbrain
Hippocampus
Homo habilis
Homo sapiens
Hypothalamus
Lateralized
Limbic system
Magnetic resonance imaging (MRI)
Midbrain
Motor strip
Myelin Sheath
Nervous System
Neurons
Neurotransmitters
Occipital lobe
Parasympathetic nervous system
Parietal lobe
Peripheral Nervous System
Positron Emission Tomography (PET)
Soma
Somatic nervous system
Spatial resolution
Split-brain patient
Subcortical
Sympathetic nervous system
Synapses
Synaptic Gap
Temporal lobe
Temporal resolution
Thalamus
Wernicke's area
White matter

Lecture Frameworks

We recommend starting the class with a discussion that will make this heavily biological unit
seem relevant to the daily lives of your students. Some students struggle to understand how the anatomy of the brain relates to psychological concepts such as attitudes, communication, and emotions. One simple way to do this is to begin by covering the evolution and development of the nervous system: it is clear that some mammals, such as cats and dogs cannot do all the things that chimpanzees and humans can do. Have your students list these differences and then suggest that some of these differences are related to differences in the nervous system (especially in the brain). Most of your first class will focus on the structure and working of neurons and the geography of the brain. Before diving into the central nervous system in the next class, emphasize that brain areas are organized in multiple ways and this can be confusing. The second class period can focus on the peripheral nervous system, methods used to study the brain, and also offer time for discussion or to reinforce learning from the previous session.

- **Warmup:** A great way to introduce the topic of the nervous system to students is by doing the Just Noticeable Differences Activity in the beginning of class.

- **Direct Instruction:** Refer to the PowerPoint slides for the following major topics: nervous system development, the central nervous system, and neurons: how the nervous system communicates

- **Activity/Demonstration:** To cover how the nervous system communicates, use the “Communication of Neurons Activity” described in the Activities and Demonstrations section. This will help solidify student’s understanding of how neurons work and how they communicate on a micro level.

- **Direct Instruction:** Refer to the PowerPoint slides to talk about structures of the brain, the brainstem, corpus callosum and the lobes of the brain

- **Activity/Demonstration:** To help communicate the various functions of the 4 lobes of the brain and solidify the students’ understanding of the brain, use the “Brain Quiz Activity” described in more detail in the Activities and Demonstrations section.

- **Direct Instruction:** Refer to the PowerPoint slides to talk about the peripheral nervous system

- **Activity/Demonstration:** To help better cover the various components and functions of the peripheral nervous system and help solidify students’ understanding of this material, use the “Name that Peripheral Nervous System Activity” described in more detail in the Activities and Demonstrations section.

- **Direct Instruction:** Refer to the PowerPoint Slides to talk about the techniques scientists and researchers use to study the brain.
Activities & Demonstrations

Just Noticeable Differences Activity

- Time: 5-10 minutes
- Materials: any pointy object such as a hairpin, pencil, or pen
- Directions:

1. Here, the instructor can have students pair up or work in small groups to test “just noticeable differences.” This can be accomplished by lightly touching two pointed objects, such as pens or pencils, against a part of the skin. You can try this on various areas such as the forearm or back of the hand. In each individual trial bring the points slightly closer together. At some point the subject will no longer be able to distinguish between the two points.

2. Discussion Questions:
   - What did you notice?
   - What did you learn?

3. Main Learning:
   - There is a limit, the just noticeable difference (JND), at which a person can distinguish the 2 points
   - The JND differs from one area of the body to another (e.g., Neck, palm, forehead)
   - The JND is the result of different number of nerves cells in each area
   - Nerves cells are part of the nervous system (the students have just studied their own nervous system!).

Communication of Neurons

- Time: 5 minutes
- Materials:
- Directions:
1. Here you can use volunteers to act out the communication of neurons. Three volunteers will do. Have them stand side by side facing the audience. Their hand should be close but not touch. You can hand the first person (representing the first neuron) several cotton balls (representing neurotransmitters).

2. Explain as the person shifts them from one hand to another how they would actually be traveling from the soma (chest/body) down the sheath (arm) to the dendrites (hand). The cotton balls are then passed across the gap to the dendrites (hand) of neuron #2. This entire process then repeats between neuron #2 and neuron #3.

3. You might ask students to suggest the types of information that synapses communicate (thoughts, emotions, movement, memories, sensations and perceptions).

Brain Quiz

After going over the functions of each of the 4 Lobes of the Brain presented on the accompanying slide, administer a quick quiz to test the students’ knowledge.

- Time:
- Materials:
- Directions:

1. Ask Students: Which area would be primarily responsible for processing:

- Realizing that the delicious smelling bread you are baking is nearly done (temporal)
- Tuning the dial and volume on a radio (occipital)- the same fusiform face area that reads facial features “puts together” other types of constellations of features such as the “face” of a radio.
- Buying refreshments and decorating your house for an upcoming party (frontal)
- Ducking when a friend throws a water balloon at you (occipital)
- The feeling of pain when someone pinches you (parietal)

Name that Peripheral Nervous System

The purpose of this activity is to allow students to apply their knowledge of the peripheral
The Brain and Nervous System

nervous system to activities common to them. There is a PowerPoint slide that accompanies this activity for the module.

- Time:
- Materials:
- Directions:

1. Begin by going through each picture from top left to top right, and bottom left to bottom right. For each picture, ask students to identify which part of the nervous system is being used and to provide rationale for their answer. Each of the pictures is animated by clickers.

2. The first picture shows someone relaxing in a pool. Make certain to emphasize “relaxing”

   - For this picture students should indicate that the parasympathetic portion of the autonomic nervous system is activated which allows her to relax because there is no immediate threat or danger.

3. The second picture shows someone running away from a bull, which is a threat.

   - For this picture students should generate that the sympathetic portion of the autonomic nervous system is activated because of the stressful situation.

4. The third picture shows a boxing match.

   - In this picture, the sympathetic portion of the autonomic nervous system was likely activated in both individuals’ because their bodies needed to be prepared for action.

5. The fourth picture is a bit trickier, but shows typing.

   - Students should indicate that typing uses the somatic portion of the nervous system because of the careful coordination of movements.
Additional Activities

Mythbusters - 8 Myths about the Brain

• Time: 16 minutes; 8 minutes for activity, 8 minutes for discussion
• Materials: If you decide to hand each person a true/false sheet, you will only need the sheet for the activity. You can also use clickers.
• Directions:

1. At the start of this unit, hand out a true/false sheet to the students with the general statements listed below. You can also put up each question on a slide sequentially, or use clickers. These statements are common misconceptions students may have about the brain. The instructor can pick or choose as many of these statements as desired. In some cases, the answers can generate interesting discussions.

- Einstein’s brain is different than our brains.
- We only use 10% of our brain.
- Listening to Mozart makes you smarter.
- People are either “right-brained” or “left-brained”.
- Drinking alcohol always kills brain cells.
- Brain damage is always permanent.
- The heart is more important for love than the brain.
- The human brain is larger than any other animal brain.

• Answers

- Einstein’s brain is different than our brain. [FALSE] According to recent research, there are no neuroanatomical differences between our brain and Einstein’s. Previous findings demonstrating that there may have been differences were quite likely due to confirmation biases and/or statistical errors, such as the multiple comparison problem.
- We only use 10% of our brain. [FALSE] This is a very popular myth that has been around for a while. Recent brain imaging tools such as the fMRI demonstrated that though it is not necessary for all the areas of the brain to be active at once, for any given activity, there are usually a number of activated areas.

- Listening to Mozart makes you smarter. [FALSE] Currently, there are no findings establishing that listening to classical music makes people smarter. There may be evidence suggesting that learning a musical instrument improves attention, confidence and coordination. In short, listening to Mozart does not have any negative effects and may be pleasant to some, but it does not make people smarter.

- People are either “right-brained” or “left-brained”. [FALSE] People use both their right and left hemispheres. Certain functions, such as speech production and facial recognition, etc., tend to be dominated by one side of the brain. However, even these tasks require input from both hemispheres. So, unless an individual’s entire hemisphere is wholly removed or impaired, no one is considered to be completely “right”- or “left”-brained.
• Drinking alcohol always kills brain cells. [FALSE] Consuming moderate amounts of alcohol does not harm brain cells. In fact, some studies have found that a glass or two of wine a day may reduce the risk of stroke. However, too much of anything is never a good thing! Years of alcohol abuse or “binge drinking” can damage neurons, change brain function, and shrink cells.


• Brain damage is always permanent. [FALSE] Recovery from brain injury depends on severity and location of the trauma. For instance, concussions are mild brain injuries, usually resulting in only short-term disruptions of brain functioning. With rehabilitation, even a severe brain injury, such as a stroke, can allow for the brain to develop new networks and “redirect” signals through the healthy regions of the brain.


• The heart is more important for love than the brain. [FALSE] The brain has a lot (if not everything) to do with love. When two people are in love, neuroimaging techniques show that many areas of the brain “light up” and various hormones (e.g., dopamine, norepinephrine, etc.) are released. These chemicals are associated with feelings of excitement and pleasure.

- The human brain is larger than any other animal brain. [FALSE] The absolute size of the human brain, though larger than some animal brains, is most definitely not the largest of all animal brains. The brains of animals like elephants and whales are significantly larger than ours.


### A Crumpled Cortex: In-Class Demonstration

This demo would be a great fit when explaining how the human brain has evolved over time, with the newest addition being the cerebral cortex, which incidentally happens to be the largest region of the brain. Ask the students to explain why the cerebral cortex is wrinkled. There may be a few students who correctly answer that the wrinkled appearance of the cerebral cortex allows for greater surface area while fitting in the confined space of an individual’s head. Use the activity to punctuate this point to the students.

- Time: 5 minutes
- Materials: You will need a sheet of paper, preferably a newspaper sheet as it has larger dimensions than legal-sized paper.
- Directions:

1. Take a plain sheet of paper and crumple it into a small, wrinkled ball.
2. Point out to the students that though the paper retains the same surface area, it is now much smaller and can now even fit in your hand. From an evolutionary perspective, it made more sense to fold the cortical layer like a crumpled piece of paper rather than enlarging the entire head!
3. You can then inform the students that if the cerebral cortex were flattened out, it would approximately be the size of a newspaper page (Myers, 1995). Alternatively, you could do this entire exercise with a newspaper page rather than a plain white sheet of paper.
4. [Adapted from Randy Smith’s Instructor Manual for the David Myers’ Introductory Textbook]

### Showercap Mindmap: In-Class Activity
Learning about the different areas of the brain can be a daunting task for anyone, let alone a first-year undergraduate student in introduction to psychology. Though the example below is comprehensive, this spatial activity can be adapted for as many or few parts of the brain the instructor desires. Researchers found that students who used this activity saw improved spatial recall of this physiological terminology as compared to students who learned the material verbally.

- Time: 15-20 min
- Materials: You will need a pack that contains: a clear, unmarked plastic shower cap, a whiteboard marker, and sticky, 15 color-coded labels (blue, green, yellow, and orange).
- Directions:

  1. Divide students into groups of 4 and assign one student on each team to wear the shower cap. Provide 10 minutes to other students to attach the labels to correct parts of the “brain”. You might allow them to use a textbook for reference (or not!).


Discussion Points

1. “What real world differences in behavior and intelligence do we see between primates and other animals such as dogs, cats, and mice?” This is a chance to point out that some of these differences may be housed in the front portion of the brain.

   ○ Possible student answers include (but are not limited to):

   - Use of fire and technologies
   - Group/family organization such as helping behaviors and more sophisticated communication (eg. Sign language, hoots warning a “friend” of possible danger, speech
2. Show students a half minute video: an animation of prenatal brain development: https://www.youtube.com/watch?v=86NDMfxU4ZU

- At approximately 30 seconds into the video, point out the ballooning up of structures in the brain. After playing the video, ask for students’ reaction. Students will likely be surprised at the rapid development that occurs.

3. For each of the structures of the limbic system, listed below, ask students to think of everyday activities that might involve using each of these structures.

- **Amygdala** – is an almond-shaped set of neurons that is part of the limbic system and located in the temporal lobe. It is involved in processing and expression of arousal and emotions like anger and fear.
- **Basal ganglia** – refers to a group of nuclei lying deep in the frontal lobes and is part of the limbic system. It involves involuntary movement and coordination.
- **Cingulate gyrus** – is the area of the limbic system that lies just above the corpus callosum. It is responsible for coordinating sensory input with emotionally significant events in order to create memories and regulate behavior.

4. Here there is an opportunity to discuss the corpus callosum, and the so-called “split brain” patients who have undergone surgery to sever their corpus callosum. Specifically, it is a chance to discuss the contralateral nature of the brain in which each hemisphere processes motor and sensory information for the opposite half of the body. You may want to show or discuss the video of a split brain patient, found here: https://youtu.be/ZMLzP1VCANo

- **Additional option:** This is also a potential opportunity to introduce students to one of the historical ways that brain function was studied—through brain damage. One of the most famous early examples is Phineas Gage, a railroad worker who survived an accident in which a steel rod was driven through his head. Common reports detail that Gage suffered personality changes, such as being irritable and using profanity, as well as epilepsy, which eventually killed him. You can learn more here: https://en.wikipedia.org/wiki/Phineas_Gage

5. Discussion questions on studying the brain:

- What are some of the advantages and disadvantages of modern imaging techniques compared with historic case studies of people with brain lesions (brain damage)?
- Possible answers include: expensive, not portable, not invasive, can identify very specific brain areas, etc.

- How much more likely are you to be convinced of the results of a psychology study if it includes a brain scan versus self-report data? Why?

### Outside Resources

**Video: Animation of Neurons**  
http://www.youtube.com/watch?v=-SHBnExxub8

**Video: Split Brain Patient**  
http://www.youtube.com/watch?v=ZMLzP1VCANo

**Web: Animation of the Magnetic Resonance Imaging (MRI)**  
http://sites.sinauer.com/neuroscience5e/animations01.01.html

**Web: Animation of the Positron Emission Tomography (PET)**  
http://sites.sinauer.com/neuroscience5e/animations01.02.html

**Web: Teaching resources and videos for teaching about the brain, from Colorado State University:**  
http://www.learner.org/resources/series142.html

**Web: The Brain Museum**  
http://brainmuseum.org/

### Evidence-Based Teaching

Kossoff, E. H., Vining, E. P. G., Pillas, D. J., Pyzik, P. L., Avellino, A. M., Carson, B. S., & Freeman,

- This article reviews the success of hemispherectomies in 111 patients treated at the Pediatric Epilepsy Center at Johns Hopkins Hospital between 1975-2001. The authors report that 86% of these surgeries resulted in a seizure-free or non-handicapping seizures prognosis, dramatically improving these children's quality of life. These findings suggest that hemispherectomy may be a viable medical option in some cases of epilepsy or other severe seizure-inducing conditions.


- Albert Einstein is widely recognized as having one of the most brilliant minds of all time. His brain has received a lot of attention, in that since his passing there have been four published studies suggesting that his brain is different from other human brains in different ways. Hines stringently reviews the evidence from these published studies and finds that in fact many of the results are due to illusory correlations and inaccurate use of statistics, as well as selective reporting. These findings suggest that future studies use more rigorous procedures and analyses in order to avoid biased results.


- Richmond and colleagues examined if the mnemonic keyword method was effective in helping students: 1) learn 26 neuroscience terms; 2) remember this information over time; and 3) use what they learned in a higher-order application exercise. Some examples of terms include: aphasia, cerebral cortex, hippocampus, etc. The researchers found that in their sample of 58 students, those who used the mnemonic method did better than those who used their own best strategies in all of three of the above objectives. These results suggest that there is a utility to using this method in psychology classes, especially in those involving lots of terminology.


- See activities and demonstration for description of this article.
Suggestions from the Society for Teaching's Introductory Psychology Primer


POSSIBLE ASSESSMENTS (Out of Class) Levels of Analysis: Using their textbooks, have students write a short paper comparing the different ways in which the nervous system can be studied (e.g., clinical observations, experimental techniques, neuroimaging techniques).

Neuroanatomy: Provide students with diagrams and have them label the lobes and other major areas of the brain and describe their primary function(s).

Myths of the Brain: Have students read and respond to the Top Ten Myths of the Brain (http://www.smithsonianmag.com/science-nature/Top-T...)

Have students choose an animal study that is described in their text (e.g., Harlow) and write a short paper about the knowledge that was gained from the study contrasted with the costs to the animal subjects.

ACTIVITIES & TECHNIQUES (In Class) Action Potential: Have students act out an action potential as described in Felsten, 1998 (see annotated bibliography). This is an integral part of understanding how the nervous system works, but is often an area that students have difficulty with. Engaging students in an interactive process for understanding the action potential usually enhances their understanding of the process.

Synaptic Transmission: Have students demonstrate synaptic transmission as described in Reardon et al., 1994 (see annotated bibliography). This is another area that is vitally important for understanding later material, but that students have difficulty grasping.

Brain anatomy: Have students construct a clay brain that depicts the lobes and the brainstem. (http://faculty.washington.edu/chudler/chmodel.html... This is a fun activity that helps students remember the lobes of the brain.)
RELEVANT TOP ARTICLES (Annotated Bibliography)


This article describes an exercise that demonstrates the propagation of action potentials. Results suggest that this activity may enhance students’ understanding of action potentials.


This article describes an exercise to engage students in a discussion about animal research. Students role-play participation on an Institutional Animal Care and Use Committee and make decisions about whether hypothetical experiments will be approved.


This article describes two exercises to help students understand neural coding and synaptic transmission. Anecdotal reports suggest that these activities aid students’ understanding of these processes.


This article describes a collaborative activity using case studies to consolidate information about neuroanatomy. Data suggest that this activity is both enjoyable and helpful to students.

PowerPoint Presentation

Chapter 4: Sensation & Perception
This module covers two of the most fundamental topics in all of psychology: sensation and perception. These are among the topics that have the longest history of research attention, dating back to the 1700s when the “physicalists” such as Weber and Helmholtz first studied biological aspects of the nervous system and sensory organs. Sensation is largely organized around the five senses and emphasizes the biological aspects of basic information processing. Perception, on the other hand, is largely organized around using that information in effective ways. The good news with this module is that because it deals with sensory information it offers a number of opportunities to engage students by having them explore their own sensory understanding of the world!

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology’s content domains (1.2)
  - Describe applications of psychology (1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
  - Demonstrate psychology information literacy (2.2)
  - Build and enhance interpersonal relationships (3.2)
  - Adopt values that build community at local, national, and global levels (3.3)

- Content Specific Learning Objectives: Sensation & Perception
• Explain Signal Detection theory
• Explain the difference between sensation and perception
• Name the important anatomical aspects of the visual, auditory, olfaction and somatosensory systems
• Understand the opponent-process theory in color vision
• Define multimodal perception and understand the processes by which it integrates the constituent sensory information

Abstract

The topics of sensation and perception are among the oldest and most important in all of psychology. People are equipped with senses such as sight, hearing and taste that help us to take in the world around us. Amazingly, our senses have the ability to convert real-world information into electrical information that can be processed by the brain. The way we interpret this information-- our perceptions-- is what leads to our experiences of the world. In this module, you will learn about the biological processes of sensation and how these can be combined to create various perceptions.

Class Design Recommendations

This module can be taught in one 60-minute class, but it is more likely that it will be taught in two class periods (45 to 60 minutes). This is because of the sheer volume of material and especially because of the volume of new vocabulary related to the anatomy of the visual and auditory systems. Students tend to be interested in the visual system, specifically, and it is possible to teach Vision as one unit and the remaining Sensation & Perception content as another unit. Please also refer to the Noba PowerPoint slides that complement this instructor’s manual. In addition, you may wish to explore the specific Noba modules and Power Points on related modules:

Vision: http://nobaproject.com/modules/vision

Taste and Smell: http://nobaproject.com/modules/taste-and-smell
Hearing: http://nobaproject.com/modules/hearing

The Vestibular System: http://nobaproject.com/modules/the-vestibular-system

Multi-modal Perception: http://nobaproject.com/modules/multi-modal-perception

Touch and Pain: http://nobaproject.com/modules/touch-and-pain

Note: Like the biological modules dealing with the brain and nervous system this module can seem formidable to students. This is largely because of the sheer volume of new and often difficult vocabulary words. It may be especially helpful for students to create study aids such as flashcards to help learn this new vocabulary. They may find it helpful if you define each term repeatedly when using it in lecture. We recommend openly addressing the potentially daunting amount of vocabulary and reassuring students that with effort and repetition they can learn it.

Overview

- Warm-Up Discussion: Which senses do you prefer?
- Understanding the difference between sensation and perception
- Vision
- Hearing
- Touch
- Smell and taste
- Multi-modal perception
- Conclusion

Module Outline

What is sensation? Why should students care?

- Sensation is simply the physical processing of stimuli through the sensory organs and channels. This includes, for example, seeing light and hearing sound. You will note the
emphasis on “physical” processing as sensation is a mechanical process by which the sensory organs detect and process stimuli. This is the primary distinction between sensation (physical processing of information) and perception (the psychological processing of interpreting and using that information).

• Some students may wonder why they are studying seemingly biological processes such as vision. These topics can seem more at home in anatomy or biology courses. In fact, it was a number of botanists and physiologists who first began the systematic investigation into the human sensory organs. For instance:

  ◦ 1791: Luigi Galvani (from whom we get the term “Galvanic Skin Response” and who also partially inspired the novel Frankenstein) used frogs to identify the flow of electrical activity through the muscles and nervous system. This was a seminal study for understanding the mechanical foundations of the link between mental and physical processes (such as thinking and moving).

  ◦ 1830: Ernst Heinrich Weber, a physiologist, used knitting needles dipped in carbon powder to identify “just noticeable differences” (the two points closest together on the skin that can still be distinguished from one another). In doing so he pioneered the field of human sensation/perception and research into the sense of touch.

• The answer to student concerns regarding why they are learning about biological processes is much the same as the answer as to why it is important for them to learn about the brain. The mechanical (i.e. physical) underpinnings of psychological processes are necessary for us to understand how thinking and emotions work. Imagine trying to study eyewitness testimony if you did not understand how eyes, or vision worked!

The Five Senses

• People constantly track sensory stimuli such as the direction and speed of movement or have their attention called by a sudden background noise. At a very fundamental level we use our classic five senses—seeing (vision), hearing (audition), smelling (olfaction), tasting, and touching—to receive information about the world around us. It is amazing that humans are specially equipped to take in stimuli, such as light or sound, and transform these into electrical signals that can be processed by the brain. Simply taking in the stimuli is “sensation” while processing it, understanding it, and using it to guide behavior is “perception.”

• There are various ways to categorize senses. First, you can divide the 5 senses into “distance senses” and “contact senses.” The former—including vision, hearing and olfaction—are the ability to sense at a distance. For the latter—taste and touch—a person must be in contact
with the stimuli for sensation to occur. Another categorization strategy is to parse out smell and taste, together, as “chemical senses.” These two senses have specialized receptors that can convert environmental chemicals (tastants and odorants) into electrical signals that can be processed by the brain. It is also possible to break some senses into finer gradients. The sense of taste, for instance, is one overarching sense that includes more specific sensations (sweet, bitter, sour, salty, umami). Similarly, the sense of touch can be divided into sensitivity to pain, temperature, and texture. Finally, it is worth mentioning that the classic 5 senses are not the only senses. We also typically talk the vestibular system, which is implicated in the sense of balance and ability to locate the self in space. This ability to sense location might reasonably be thought of as a sixth sense.

Multi-modal Perception

- Multi-modal perception is, perhaps, the most overlooked aspect of sensation and perception as it is typically taught in high school and college courses. By necessity, we teach sensation parsed apart into the individual senses (touch, hearing, and so forth). But when perception occurs—when we make sense of these sensory inputs—the perception is more than the sum of its constituent parts.

- For example, when you witness a minor car accident you do not simply see the motion, hear the sound, and smell the odors of the accident. Instead, these sights, sounds and smells combine to create a mental image of what happened in the same way that a lasagna is more than just noodles, cheese, and sauce.

- The mingling of the senses can be seen, perhaps, most clearly in some well-known illusions: In the McGurk Effect a person's visual sensation influences the actual sounds they hear. Similarly, in the “rubber hand illusion” the combination of touch and sight can lead people to believe an artificial hand is their own!

Difficult Terms

Note: This module can seem formidable to students; largely because of the sheer volume of new and often difficult vocabulary words. Students may find it helpful if you define each term repeatedly when using it in lecture. We recommend openly addressing the potentially daunting amount of vocabulary and reassuring students that with effort and repetition they can learn it.
Difficult Terms

Absolute threshold
Agnosia
Anosmia
Audition
Auditory canal
Auditory hair cells
Binocular disparity
Binocular vision
Bottom-up processing
Chemical senses
Cochlea
Cones
Dark adaptation
Differential threshold (or just noticeable difference JND)
Dorsal pathway
Flavor
Gustation
Light adaptation
Mechanoreceptors
Multimodal perception
Nociception
Odorants
Olfaction
Olfactory epithelium
Opponent-process theory
Ossicles
Perception
Phantom limb
Phantom limb pain
Pinna
Primary auditory cortex
Primary somatosensory cortex
Primary visual cortex
Principle of inverse effectiveness
Retina
Rods
Sensation
Sensory adaptation
Shape theory of olfaction
Signal detection
Somatosensation
Somatotopic map
Sound waves
Superadditive effect of multisensory integration
Tastants
Taste receptor cells
Top-down processing
Transduction
Trichromatic theory
Tympanic membrane
Ventral pathway
Vestibular system
Weber's law

Lecture Frameworks

We recommend starting the class with a discussion that will engage students by bringing the module material into the realm of their everyday experience. Sensation and Perception is one module where students have ample personal life experience upon which to draw: they have all spit out unpleasant food, ducked out of the way of a flying object, or listened to beautiful music. You can begin by having students take stock of these personal experiences before going on to define sensation and perception, respectively, and articulating the difference between them. In addition, students can sometimes benefit from hearing why this topic is psychological in nature (as opposed to anatomical or biological). It can help to clarify the link between sensation (how stimuli gets inside your brain) to perception (how we make sense of the sensation) and other, higher-order psychological processes like motivation, relationships, and cognition.

Because of the volume of information in this module it is likely that you will teach this in two, rather than in a single, class session. If you do, we recommend teaching the overview material through the material on the sense of vision in one period, and in the second period cover: smell & taste, touch, hearing, vestibular system, and multi-modal perception. You can shift smaller learning units—such as the sense of touch—from one period to the other to balance your time according to your own scheduling needs.
Warmup: Ask students to reflect on which of the 5 senses they would give up if they had to; this is especially effective when conducted in small groups. See Activities & Demonstrations below.

Direct Instruction: Refer to the PowerPoint slides for the following major topics: the distinction between sensation and perception. An easy example can be found in disagreements about music: if everyone senses the music in exactly the same way it is individualized perception that explains differences in musical taste.

Direct Instruction: Refer to the PowerPoint slides to talk about signal detection and bottom-up versus top-down processing.

Direct Instruction: Refer to the PowerPoint slides to talk about vision. Of all the senses there is, perhaps, the most to say about vision and it is possible to spend a large portion of a class period on this single topic. The main topics related to vision are: anatomy of the eye, depth perception, light and dark adaption, opponent process theory of color vision.

Activity/Demonstration: To help students engage with the topic of vision you can have them hold a pen at arm’s length and open each eye in turn (the pen appears to jump back and forth). This quick demonstration illustrates the way that binocular vision emerges from a combination of the monocular vision of each eye. You can also use the stimuli slides to demonstrate opponent process theory of color vision. See Power Point slides.

Direct Instruction: Refer to the PowerPoint Slides to talk about hearing. The main topics include: anatomy of the inner ear, aspects of hearing such as pitch, timbre, and volume, and directional hearing.

Direct Instruction: Refer to the PowerPoint Slides to talk about smell, taste, touch and the vestibular system.

Direct Instruction: Refer to the PowerPoint Slides to talk about multi-modal perception. Of all topics typically taught in sensation/perception units this may be the least commonly addressed. Although it can be difficult to understand it can also produce “aha!” moments for students when they understand how the senses combine.

Activities & Demonstrations

Which sense could you live without?
• Time: 5-8 minutes
• Discussion: no materials required
• Directions:

1. Here, the instructor can have students work in small groups to discuss the question “If somehow you were forced to, which one sense would you give up?” This is an opportunity for students to reflect on the relative usefulness of all their senses, and also to appreciate individual differences in preferences. There are a variety of variations of this question, such as “how much money would it take for you to be willing to sacrifice this sense?” (students would write a monetary amount for each of the 5 senses; although some might be reluctant to write any amount!). You can also follow-up with an exploration of the ways life might be harder without this one sense (e.g. with no sense of smell a person could not detect spoiled food, would have limited ability to taste food, etc.)

2. Main Learning:
   ○ There may be some trends in preferences in which people generally place a premium on vision and hearing over smell.
   ○ All senses provide important information

Sensation versus Perception

• Time: 10 minutes
• Materials: Video “Skwerl!” https://www.youtube.com/watch?v=Vt4Dfa4fOEY (Total run time: 4 minutes, although you can play the first 2 minutes 30 seconds for the same effect)
• Directions:

1. Show students 2.5 minutes or 4 minutes of the short film “Skwerl.” This independent film project showcases what English might sound like to people who do not speak or understand English. Although the actors use some English words in their dialogue, these are randomly chosen words and are interspersed with non-sense words. The result is a conversation that English speakers will feel that they ought to be able to understand, but cannot. This film can be a powerful demonstration of how “hungry” the mind is to make sense out of stimuli (the difference between perception and sensation).

2. Instructions: Ask students to watch the film and pay particular attention to the language being used. After the video is over, have students present their reactions. Some will feel
as if they heard specific words, complete sentences, or whole meanings; others may feel that the words were made up. Consider using these questions as prompts for partner or large group discussion:

- What was the couple discussing while eating at the table?
- What percent of the words do you think were actually English? How similar is your answer to this question to that of other people in this class? If everyone heard the same words (sensation) why do we differ in our perception of those words?
- What was the relation of the two characters? Why do you think this (from sensations, or perceptions)?

3. Main Learning:

- Sensation is different from perception.
- People naturally try to make sense of sensations. When sensations are non-sensical—as in the case of the language used in this film—people try to “fill in meaning.”
- The tendency to make meaning out of stimuli—to perceive sensations—suggests the usefulness of sensation.

Opponent Process Theory of Color Vision

After explaining the opponent process theory of color vision you can demonstrate this phenomenon.

- Time: 5 minutes
- Materials: Power Point Slides with (x2) “reverse images” as stimuli
- Directions:

After explaining the opponent process theory of color vision to your students you can use these two slides to demonstrate the phenomenon.

- Blue cross on red background: Instruct students to stare at the center of the cross for 25 seconds. It is okay of they accidentally blink but they should attempt to stare for as long as possible. Time them. At 25 seconds, tell them to continue staring at the white screen (you should click the Power Point at this time to advance to a blank, white screen). A reverse image should appear: a red cross on a blue background. Ask for student reactions.
- Reverse image of Girl with Pearl Earring portrait: Instruct students to stare at the center
of the portrait for 25 seconds. It is okay if they accidentally blink but they should attempt to stare for as long as possible. Time them. At 25 seconds, tell them to continue staring at the white screen (you should click the Power Point at this time to advance to a blank, white screen). A reverse image should slowly appear: the famous painting, in more detail, and with a different color scheme. Ask for student reactions.

**Additional Activities**

The Emission Theory of Vision

Although this widely-accepted theory of vision has been relegated to a historical footnote in modern times it was a common sense explanation that endured for more than a thousand years. Introducing it to students can offer them insight into their own assumptions as well as a fresh appreciation of how advanced and often times counterintuitive is the modern understanding of the world.

Today, people easily accept the fact that when we see an object-- a dog, a fingernail, spider-man-- it is really reflected light we are seeing. Natural light from the sun, or artificial light, bounces off the object and enters our eye. When you take time to reflect on this it quickly becomes apparent that this is an unusual, and counterintuitive way to explain vision. More sensible is the emission theory held by Plato and other noteworthy thinkers of antiquity.

In the Emission Theory of Vision light shoots out from the eye and lands on the object a person sees. It's a bit like superman's X-ray vision only instead of seeing through objects you simply see objects. This explanation is particularly sensible in the context of its earliest versions. For instance, the physician/scientist Empedocles believed that the goddess Athena created human eyes out of a combination of the 4 Greek elements (air, earth, fire and water) and infused eyes with the fundamental fires of the universe itself. To Empedocles, the eye was a small cosmic lantern in which a divine fire burned and was the source of all vision.

It should be readily apparent that this explanation has a few drawbacks, even if you were to accept concepts of elements, goddesses and universal fires. Chief among these, is the idea that people cannot see well in the dark. If sight emanates from within the eye day and night should not affect our ability to see. Later thinkers, including Plato, dealt with this pesky problem by suggesting that the inner light of the eye co-mingled with sunlight to produce vision.
You can read a brief Wikipedia article on the topic here:


Potential discussion questions for students:

A) Many people in the ancient world believed that sight emanated from the eye and shot out like a ray. You, a modern person, know better. You understand that sight is just the taking in of external light that reflects off of objects in the world around us and enters our eye. How would you disprove this ancient theory?

The Case of Neil Harbisson

Artist Neil Harbisson is best known, perhaps, for his widely viewed TED talk "I listen to color" (viewed more than 2 million times). In it, Harbisson describes being born completely color-blind, seeing the world only in gray scale. Harbisson describes how he senses the world and how he interprets sound as color. It is an extreme, unusual, and fascinating study of sensation and perception. Run Time: 9 and a half minutes.

https://www.youtube.com/watch?v=ygRNoieAnzl

Discussion Questions:

A) What are your reactions to this?

B) How would the world be different if everyone sensed in this way?

Outside Resources

Audio: Auditory Demonstrations from Richard Warren's lab at the University of Wisconsin, Milwaukee
http://www4.uwm.edu/APL/demonstrations.html

Audio: Auditory Demonstrations. CD published by the Acoustical Society of America (ASA). You can listen to the demonstrations here
http://www.feilding.net/sfuad/musi3012-01/demos/audio/


Video: Acquired knowledge and its impact on our three-dimensional interpretation of the world - 3D Street Art https://youtu.be/GwNeukAmxJw

Video: Acquired knowledge and its impact on our three-dimensional interpretation of the world - Anamorphic Illusions https://youtu.be/tBNHPk-Lnkk

Video: Acquired knowledge and its impact on our three-dimensional interpretation of the world - Optical Illusion https://youtu.be/YjmHofj2da0

Video: Cybersenses https://www.youtube.com/watch?v=_8rPD6xLB4A

Video: Seeing Sound, Tasting Color https://www.youtube.com/watch?v=FTr1VnXKr4A

Video: The Phantom Limb Phenomenon https://www.youtube.com/watch?v=1mHIv5ToMTM


Web: A special ringtone that is only audible to younger people. https://www.youtube.com/watch?v=IrewnzQYrPI

Web: Amazing library with visual phenomena and optical illusions, explained http://michaelbach.de/ot/index.html

Web: An article on the discoveries in echolocation: the use of sound in locating people and
things

Web: An optical illusion demonstration the opponent-process theory of color vision.
https://www.youtube.com/watch?v=qA2brNUo7WA

Web: Anatomy of the eye
http://www.eyecareamerica.org/eyecare/anatomy/

Web: Animation showing tonotopic organization of the basilar membrane.
https://www.youtube.com/watch?v=dyenMluFaUw

Web: Best Illusion of the Year Contest website
http://illusionoftheyear.com/

Web: Demonstration of contrast gain adaptation
http://www.michaelbach.de/ot/lum_contrast-adapt/

Web: Demonstration of illusory contours and lateral inhibition. Mach bands
http://michaelbach.de/ot/lum-MachBands/index.html

Web: Demonstration of illusory contrast and lateral inhibition. The Hermann grid
http://michaelbach.de/ot/lum_herGrid/

Web: Demonstrations and illustrations of cochlear mechanics can be found here
http://lab.rockefeller.edu/hudspeth/graphicalSimulations

Web: Double Flash Illusion
https://vimeo.com/39138252

Web: Further information regarding what and where/how pathways
http://www.scholarpedia.org/article/What_and_where_pathways

Web: Great website with a large collection of optical illusions
http://www.michaelbach.de/ot/

Web: McGurk Effect Video
https://www.youtube.com/watch?v=G-lN8vWm3m0
Evidence-Based Teaching

Seeing the Light: A Classroom-Sized Pinhole Camera Demonstration for Teaching Vision


Abstract

We describe a classroom-sized pinhole camera demonstration (camera obscura) designed to enhance students' learning of the visual system. The demonstration consists of a suspended rear-projection screen onto which the outside environment projects images through a small hole in a classroom window. Students can observe these images in a darkened classroom. Instructors can demonstrate the function of the lens and pupil and the structural basis for nearsightedness and farsightedness. Students who saw the demonstration as part of a lecture on the visual system learned more (i.e., showed greater performance gains from pretest to posttest) than a comparable group of students who received the lecture only. Students reacted favorably to the demonstration. These data suggest that incorporating the demonstration
into class presentations on vision can improve student learning.

**Problem-Based Group Activities for Teaching Sensation and Perception**


**Abstract**

This article describes 14 problem-based group activities for a sensation and perception course. The intent was to provide opportunities for students to practice applying their knowledge to real-world problems related to course content. Student ratings of how effectively the activities helped them learn were variable but relatively high. Students rated their ability to apply their knowledge of sensation and perception to real-world issues substantially higher at the end of the course than at the beginning. Furthermore, student performance on an objective assessment of knowledge was significantly higher at the end of the semester than at the beginning. The results provide preliminary evidence that it is possible to develop an effective sensation and perception course that incorporates problem-based learning activities.

**Suggestions from the Society for Teaching's Introductory Psychology Primer**

**POSSIBLE ASSESSMENTS**

*(Out of Class)*

One common problem in sensation is the large amount of anatomical structures that must be learned. Students can help study these features by scrolling through interactive sites. These are great for independent knowledge acquisition and to gain familiarity with the anatomical structures.

- For the eye: http://www.lensshopper.com/eye-anatomy.asp
- For the ear: http://hyperphysics.phyastr.gsu.edu/hbase/sound/ear.html

Have students compare and contrast any two systems (i.e. vision vs. audition) to further
reinforce the process of sensation. This helps students relate to the concept of sensation, perception and how it relates to all of our senses.

Assessing sensation and perception when one has suffered an injury or interruption in the process: Randomly assign a case study from “The Minds Eye” by Oliver Sacks. Students should be able to answer questions regarding the sensory or perceptual processes affected.

I also like to use an excerpt from the book, “Island of the Colorblind” by Oliver Sachs as a means of getting students to understand the concept of sensation and perception. You could also show them a video of these phenomena available on youtube. This is a 6 part series and will allow you to talk about sensation and perception as well as nature vs. nurture (if that is a theme in your classroom as it is in mine). The video or excerpt could be used in class or as an out of class assessment, possibly as a means to prepare for a potential essay topic.

- [http://www.youtube.com/watch?v=CM06G26X-rQ](http://www.youtube.com/watch?v=CM06G26X-rQ)

(In Class)

The brain uses the information it receives to piece together a fairly accurate representation of the external world. One method the brain uses to make meaning from the sensations it receives is through algorithms and past experiences; similar to the way we solve cryptograms. There are a number of websites where students can try their hand at solving these puzzles, such as [http://www.cryptograms.org/play.php](http://www.cryptograms.org/play.php) or [http://www.rinkworks.com/brainfood/p/crypts1.shtml](http://www.rinkworks.com/brainfood/p/crypts1.shtml). Students could either complete the same one or pick their own. Then have the class explain what rules of the English language they used, as well as what past experiences lead to the solution. This allows students to understand that the brain performs a similar task in perception. Students really enjoy this activity and it only takes a few minutes within a lecture. I use it to introduce perception.

**ACTIVITIES & TECHNIQUES**

(In Class)

Explain the process of perception using the neural “algorithms” within the brain.

Gestalt laws of organization:

- These organizational processes can be explained nicely using real examples from art. Students like this way to present perception because they can relate to the art and many
have prior knowledge of the pieces I choose.

Related Background Readings (instructors):


Illusions are a great resource to help explain perception because we are able to see the visual system attempting to correctly solve the puzzle and creating an inconsistent perception. These are easy to incorporate into a lecture (Most of them taking only a few minutes) and could also be used to assign as an out of class assessment. Michael Bach's website is a treasure trove of visual illusions. This site offers the most current scientific explanations for each illusion. You can select just the right illusion to incorporate into the lecture. What I like about his website is he gives the best explanation for why the illusion exists in a concise and straightforward way. http://www.michaelbach.de/ot/

- Color perception
- Depth Perception
- Auditory illusions are available to help students understand auditory perception. To help students understand how prior knowledge can affect perception use the sound files listed on the following website http://www.lifesci.sussex.ac.uk/home/Chris_Darwin/SWS/
- Taste illusions are easily created with food coloring and a food item. I have used orange juice before and it has worked nicely. Orange juice colored differently will have a profound effect on taste. I have students rate the three different drinks (which are really orange juice without any additive color, OJ with orange food coloring to make it darker, and OJ with a little red food coloring) on different characteristics-real orange taste, sweetness, bitterness, etc. Students will typically rate the three drinks differently. After the demo, I have them rate the taste of two glasses of water with orange and red added to show them that the taste of the orange juice was not physically affected by the addition of the food coloring. Instead, their taste was affected by the visual perception of the drinks. This works better if you have a small class. I have used it in a larger class as an opening activity before class begins and it requires about 8-10 minutes.
• Sensory thresholds and sensory adaptation

• Sensory adaptation: A number of different classroom activities are listed that can even be adapted depending on the time available in class. Note: I never seem to have enough time to get to these activities because sensation and perception always require more time than I typically allocate.


(Out of Class)

Related Student Reading: I assign this outside of class as a way to get students thinking about perception and as a possible essay topic for an exam.


Many students are interested in subliminal advertising or subliminal persuasion. You could incorporate a discussion about the difference between the two. To get the ball rolling you could show them a video clip from Derren Brown (http://www.youtube.com/watch?v=f29kF1vZ62o).


• Subliminal perception occurs when our behavior is influenced by a stimulus below our threshold. What should be noted to the students is that subliminal perception occurs in highly controlled environments, usually in the lab. Note: I will oftentimes use this for an out of classroom assessment/homework assignment to get students to think critically.

RELEVANT TOP ARTICLES

(Annotated Bibliography)

Haws, L. & Oppy, B. J. (2002). Classroom demonstrations of auditory perception. Teaching of
When educators include sensation and perception into their introductory psychology course, vision is more oftentimes discussed with little or no coverage of audition. In this article, the authors give four related demonstrations that allow students to experience auditory perception under different situations and can ultimately enhance the topic of perception in general.


Teaching of Psychology, 24, 267-268.

This article is a great resource for helping students to understand how one theory of color vision is not enough to explain color processing and color perception. Using visual adaptation and afterimages, the article first explains a demonstration that supports the Young-Helmholtz trichromacy theory of color vision. Changing the stimulus slightly will begin to show that the Young-Helmholtz theory cannot explain every color perception we have. In this case, the opponent processing theory may help to better explain the after image experienced. The color theories are difficult to understand but including these demonstrations allows for a more active engagement in in the concept of color perception.

Links to ToPIX Materials

Activities, Demonstrations, Handouts, etc.: http://topix.teachpsych.org/w/page/19981036/Sensation in the Classroom


Video/Audio: http://topix.teachpsych.org/w/page/19981024/Perception Video

Teaching Topics
Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

Chapter 5: Learning & Behavior
This unit covers classical and instrumental conditioning—two different but fundamental forms of learning—and observational learning.

Classical conditioning is the Pavlovian response that occurs when we make behavioral or emotional connections to a stimuli. Instrumental, or operant, conditioning shapes behavior through reinforcers or punishers. The behavioral outcome can often look very similar with each type of conditioning. The first module in this unit covers both the similarities and the differences between the two.

Observational learning is the learning that occurs by watching others. The final section of this module describes the classic Bobo doll study by Albert Bandura and the factors needed for optimal observational learning to take place.

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Describe applications of psychology (1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
  - Engage in innovative and integrative thinking and problem solving (2.3)

- Content Specific Learning Objectives
Distinguish between classical (Pavlovian) conditioning and instrumental (operant) conditioning.

Understand some important facts about each that tell us how they work.

Understand how they work separately and together to influence human behavior in the world outside the laboratory.

Understand the basic processes facilitating observational learning.

Students will be able to list the four aspects of observational learning according to Social Learning Theory.

Abstract

Basic principles of learning are always operating and always influencing human behavior. This module discusses the two very fundamental forms of learning that are represented in classical (Pavlovian) and instrumental (operant) conditioning. Through them, we respectively learn to associate (1.) stimuli in the environment or (2.) our own behaviors with significant events such as rewards and punishers. The two types of learning have been intensively studied because they have powerful effects on behavior and because they provide methods that allow scientists to analyze learning processes rigorously. This module describes some of the most important things you need to know about classical and instrumental conditioning, and it illustrates some of the many ways they help us understand normal and disordered behavior in humans. The module concludes by introducing the concept of observational learning which is a form of learning that is largely distinct from classical and operant conditioning.

Class Design Recommendations

Learning is optimally taught over a 2-class period. This section of the course not only represents a major approach in the field of psychology, it also includes some of the terms and concepts with the highest levels of difficulty (Gurung & Landrum, 2014). Be prepared to spend extra time with examples of classical and operant conditioning.

For two long class periods we recommend extending the classical conditioning activity and showing a video reinforcing learning concepts with real world examples. Starting a video in the first class period and finishing and/or discussing it in the second class period is a good
way to bridge the segments of related material. If you have one long and one short class period adjust the schedule accordingly (e.g., move observational learning to class one if that is your longer session). See the supplementary resources for video recommendations.

Please also refer to the Noba PowerPoint slides that compliment this outline.

1st class period (50 min – 75 min):

- Definition of behaviorism, stress focus on empiricism
- Classical Conditioning paradigm (US, UR, CS, CR)
- Application of Classical Conditioning paradigm to human experience
  - Conditioned Emotions (e.g., advertising)
  - Conditioned Taste Aversion

2nd class period (50 min – 75 min):

- Definition of Operant Conditioning
  - Three-term contingency
- Description of basic procedures (reinforcement & punishment)
- Schedules of Reinforcement
- Application of Operant Conditioning to human experience
  - Shaping
- Observational Learning

Module Outline

Two types of conditioning
Scientists began to understand animal and human behavior through two basic forms of learning.

Ivan Pavlov conducted the classic experiment demonstrating what is today known as classical or Pavlovian conditioning. The experiment trains a dog to salivate to the ringing of a bell, a previously neutral stimulus.

Classical conditioning is when an unconditioned stimulus (UCS), which elicits an unconditioned response (UCR), is paired with a conditioned stimulus (CS) to train a conditioned response (CR) when eventually the CS is presented alone.

Classical conditioning is important today because it represents conditioning that is always occurring in our lives when neutral stimuli become paired with psychologically significant events.

Edward Thorndike and B. F. Skinner studied instrumental or operant conditioning.

Operant conditioning is based on the animal operating on its environment and adjusting behavior based on a reward or punishment.

Thorndike's law of effect says that, “When a behavior has a positive (satisfying) effect or consequence, it is likely to be repeated in the future. When a behavior has a negative (annoying) consequence, it is less likely to be repeated in the future.”

Classical and Operant conditioning are both useful for understanding learning and are both evident in the real world.

Useful Things to Know about Pavlovian Conditioning

A Pavlovian response is more complex than discussed in Pavlov’s classic experiment. Pavlov measured salivation only, but this does not mean that salivation was the only response elicited from the organism, other systems needed for digestion (e.g., insulin production) would also react.

Taste aversion conditioning can happen naturally such as a dislike of tequila after a night of drinking too much.

Fear conditioning can happen when people associate cues with emotional responses and can cause anxiety disorders.

Another emotional pairing is with drug use (legal and illegal) and the cues of the environment in which they are ingested. These cues elicit responses that compensate for the upcoming effect of the drug (e.g., becoming more sensitive to pain before a dose of morphine, which would take away pain).

Pavlovian cues can also motivate operant behavior. In the presence of a cue (CS) a person
or animal will work harder to earn the reinforcement (e.g., food) or to avoid the punishment (e.g., electric shock).

The Learning Process

• Simply pairing a CS with a UCS is not enough for an association to be learned. The CS must be the first CS paired. When adding a second CS to condition an effect called blocking takes place. The conditioning of stimulus “A” blocks the learning of stimulus “B”.

• An application of blocking is seen in learning the color of money. In the US all money is green and the number tells the amount. When visiting Canada color and number are paired, however Americans will often use only the numerical value and fail to learn the color of a Canadian bill.

Erasing Pavlovian Learning

• Extinction is the process of eliminating a conditioned response to a conditioned stimulus. The concept and process of extinction can be used as a therapy for some phobias – for example the conditioned stimulus of the spider no longer elicits fear.

• Spontaneous recovery is when the CS elicits an extinct response. Spontaneous recovery and the renewal effect imply that extinction merely inhibits the response and does not erase it.

Useful things to know about Instrumental Conditioning

• Instrumental or operant conditioning is based on a system of reward and punishment. The bigger the reward or punishment, the bigger the effect on behavior.

Instrumental Responses Come Under Stimulus Control

• The classic response is a food reward with lever pressing. But the lever pressing can be paired with a stimulus, such as a light, where food comes only when the lever is pressed while the light is also on.

• The stimulus controlling the operant response is called a discriminative stimulus. This stimulus does not automatically elicit the response, but sets the stage for the operant behavior to occur.
• Stimulus-control techniques are used in laboratories to study perception. They can test how well an animal can see, hear, or smell. They can also test higher-order cognition where there are multiple levers, each paired with a different discriminative stimulus.

Operant Conditioning Involves Choice

• In operant conditioning there is always a choice. Push the lever or don't push the lever. Choosing “right” gets one reward or reinforcer, but each alternative comes with its own reinforcement as well.

• The study of choices has led to the quantitative law of effect where the choice made is based on that choice and its reinforcer in comparison to all alternatives and their reinforcers.

Cognition in Instrumental Learning

• Animals learn about the specific consequences of each behavior and choose to perform a behavior based on how much they currently value the consequence.

• The reinforcer devaluation effect is when a trained aversion to one choice is remembered. A rat is given two levers, one lever is paired with a conditioned taste aversion and the other is not. After training and rest, the rat is observed again and will choose the lever no associated with the aversion even in the absence or reinforcing foods.

• Instrumental goal-directed behaviors can also become habits. Such that if the rat was conditioned to push a lever extensively before taste aversion training the habit will take over and the rat will continue to push this lever.

Pairing Classical and Instrumental together

• In the laboratory classical and operant conditioning are studied separately, but in the real world they almost always occur together. A person who is reinforced for drinking or eating excessively is often presented with the same stimuli – place or people – which also works as a cure for the behavior.

• The stimulus and response work together to the same outcome. These associations are common and automatic.

Observational Learning
Sometime children learn though observing. Like at a playground, when a new kid arrives he might stand back and watch the game to understand the rules and how to play before joining in. He learning through observation.

Bandura's Social Learning Theory says that people can learn novel responses through observation of others. Learning is not dependant on reinforcements, rather social models - the presence of someone to observe.

Social models are people of higher authority (e.g., parents, teachers) or status (e.g., peer who already know the rules) to the person observing. Social models provide information as to how to act in specific situations.

Bandura theorizes that observational learning is made up of four parts:

- attention – the learner must pay attention to what they are observing
- retention – the learner must remember what they have observed
- initiation – the learner must be able to execute the observed behavior
- motivation – the learner must want to learn what is observed

In his most famous experiment, the Bobo Doll experiment, Bandura found that children who observed adults playing aggressively with the clown (Bobo) doll were more likely to play aggressively then children who observed adults who showed no aggression to Bobo.

- Children used the social model of the adult to conclude that aggressive behavior was ok.

However, children showed less aggression if they observed the adult who played aggressively receive punishment. Bandura called this vicarious reinforcement, as the children did not experience it [the punishment] directly, but were still influenced by it.

Regarding Difficult TermsPlease note that many students have a difficult time with what would otherwise be interesting and engaging material because of the many difficult terms involved with this topic. The abbreviations—CS, CR, UCS and UCR—can be a bit like learning vocabulary in a new language. Similarly, the various types of punishment and reinforcement can also be conceptually confusing, especially because of the similarity in terminology. Like learning a foreign language it may be helpful for students to create vocabulary flash cards or for you to post simple definitions (on the whiteboard, for example) if possible. Remember to be patient with your students here: for those who are confused or who begin daydreaming instead of paying attention it is not necessarily to concepts they are reacting to but, instead, the difficult language.
Difficult Terms

behaviorism
classical conditioning
conditioned response (CR)
conditioned stimulus (CS)
conditioned taste aversion
instrumental learning
negative punishment
negative reinforcement
operant conditioning
Pavlovian conditioning
positive punishment
positive reinforcement
secondary reinforcers
shaping
social learning theory
stimulus discrimination
stimulus generalization
unconditioned response (UCR)
unconditioned stimulus (UCS)

Lecture Frameworks

Overview

Learning is a topic that can start out a bit confusing for students. The meaning of learning we talk about (classical and operant conditioning) is a bit different than what many students think of when they hear learning. They more often define learning as knowledge acquisition. This module is about the underlying mechanisms for learning. There are also a lot of terms to keep in mind, so going slowly and repeating information throughout the lectures helps. We also have included several activities and demonstrations that reinforce the terms and definitions of learning.

First Class Period

- Discussion/warm-up
Start by asking students how they define learning. What is learning? How do we learn? Although instructed to read before class – there will always be a mixture of those who have and have not. This general question works for both groups of students. Those who have not read will bring up preconceived notions, those who have read will likely state text definitions, but through probing you can get a sense of what they understand and where clarification is needed.

- Lecture – Refer to slides for the following:

  - To talk about classical conditioning. Cover Pavlov’s classic experiment and the four parts of classical conditioning. Students can have a difficult time understanding which is the UCS the CS the UCR and CR. By going over these elements with the slides and activities multiple times, hopefully students will learn the distinctions and remember them forever.
  
  - To demonstrate CC via a “Rules” activity. Before moving on, ask the students to write a short paragraph about how they felt when they saw the rules and thought there might be a quiz.
  
  - To summarize key elements of classical conditioning.
  
  - To talk about some real world applications (e.g., advertising). Use the examples in the text and the notes from the slides as a springboard for other examples. Answer any student questions.

- Optional Quiz – This time a real quiz. Students can use the same paper from earlier. Ask students to identify the CS UCS CR and UCR from the lemonade activity, then answer questions from Appendix A.

- If you have time, we like to end this class with a video:

  
  - After the video discuss what types of learning was observed and what we can learn from animal behavior.

Homework – between class periods Choose one or two of the discussion questions and post as online homework through your institution’s course management system (e.g., Blackboard, Moodle).

Second Class Period
• Discussion/warm-up
  ○ Go over homework question(s) and answers (if assigned), or use one of the questions to start a discussion. These questions will get students oriented back to the topic and ready to learn about operant conditioning.

• Lecture – Refer to slides for the following:
  ○ To talk about operant conditioning. Plan to spend extra time on positive and negative rewards and punishments, as it is confusing for many students to grasp the concepts of negative rewards and positive punishments. There are examples in the slide notes with extra discussion questions.

• Optional Activity: Shaping (see Activities/Demonstrations)
  ○ Go through activity 2-5 times.

• Lecture – Refer to slides for the following:
    ✓ Ask students what they think observational learning is and how it works (depending on if they read or not you may get more brainstorming) then go through the four parts of observational learning.
    ✓ Discuss the Bobo Doll experiment and show video (use the one in text or the link from Supplemental Material; each approximately 5 minutes)
  ○ To talk about some real world applications.
    ✓ Ask students to think about the different types of learning we've covered and what types of learning they encounter most often.
  ○ To review
    ✓ Use the Appendix slides to quiz students or go over the material further.
    ✓ Use review time to answer students’ questions.
Activities & Demonstrations

Shaping activity

From the STP Primer:

- Shaping: Ask one volunteer to leave the room briefly. The remaining students should pick a simple behavior such as standing behind the podium, writing on the chalkboard, or turning the lights off/on. The remaining students should also decide on a “reinforcer” such as tapping on their desks or stomping their feet. When the volunteer returns to the classroom, instruct him/her to move around the classroom earning as many reinforcers (taps, stomps) as possible.

- This works well with students tapping a pencil on the desk, although there are types of clickers or noisemakers that could be purchased and used. Students usually need an example to learn how/when NOT to tap for incorrect behavior. It's easy to get caught up in tapping and forget why you are tapping.

- For the first try it is a good idea to tell the students they need to shape you and give a behavior such as to open the book on your podium or take a drink of water. Something simple and in this case you know the outcome, so can purposefully do wrong actions – hopefully the reinforcing tapping will stop – and right actions where the tapping will get stronger.

- Use 2-5 volunteers to give different students a chance to participate and the rest of the class gets multiple opportunities to learn when and how to tap.

- By the end of the trials students should understand how reinforcing behavior shapes behavior.

- After the activity ask students to think about reinforcers in real life that shape their behavior. For example in elementary school getting a sticker for raising your hand. Or getting a big tip for extra service at work.

Additional Activities


- Cogan and Cogan (1984) introduced a classroom demonstration of classical conditioning that involved pairing a neutral cue with lemonade powder. This article reports an addition to the Cogan and Cogan method to incorporate the phenomenon of renewal. Renewal, a relatively new phenomenon in classical conditioning, occurs when acquisition and extinction occur in different contexts. If testing occurs in the acquisition context or a neutral context, a return of responding to the extinguished cue occurs. This outcome provides evidence that extinction is new, context-dependent learning. This exercise promotes understanding the procedures and results of renewal experiments as well as the theoretical and clinical implications of this phenomenon.


- "An Inexpensive Habituation and Sensitization Learning Laboratory Exercise Using Planarians" / Michael J. Owren and Dana L. Scheuneman / describes a lab exercise using planaria to give students hands-on experience with concepts such as dishabituation, spontaneous recovery and short- vs long-term habituation processes

- "A Classical Conditioning Laboratory for the Psychology of Learning Course" / Gary B. Nallan and D. Mark Bentley / discusses a classical conditioning component using existing operant conditioning equipment

- "Teaching Operant Conditioning at the Zoo" / Kristen E. Lukas, M. Jackson Marr and Terry L. Maple / explains the partnership forged by the authors between Georgia Tech and Zoo Atlanta that enabled students to observe zoo animals, develop a plan for shaping specific behaviors and implement the plan

- "Classical-Conditioning Demonstrations for Elementary and Advances Courses" / Charles I. Abramson, Tim Onstott, Shawn Edwards and Kathy Bowe / describes classical conditioning procedures using common houseflies and earthworms

- "A Classroom Demonstration of Taste-Aversion Learning" / Michael R. Best and W. Robert Batsell, Jr. / explains procedures used to demonstrate the development of taste aversions in rats.


- In this popular in-class activity, students see human **classical conditioning** actively unfold in an entertaining, understandable, and memorable demonstration. This demonstration requires minimal preparation, is easy to execute, and reliably generates excellent student questions and observations. It is appropriate for classes in introductory **psychology**, learning and memory, and cognition. It involves one or two student volunteers, usually takes 10 to 20 minutes, and can be used in most any class size.


- Describes a media assignment completed by 69 undergraduates that was designed to improve Ss' ability to apply their knowledge of psychological concepts to examples of real-world events. Ss collected examples from the popular media that illustrated operant **conditioning** (OC) or **classical conditioning** (CC) concepts. Afterward, Ss took a quiz that contained factual and applied multiple-choice questions on OC and CC. Ss who collected examples of OC principles performed better than Ss who collected CC examples on quiz questions that assessed Ss' ability to apply their knowledge of OC. However, no effect was found with Ss who collected CC examples. Media assignments may enhance students' learning and their ability to apply course knowledge to real-world events.


- Demonstrating **Classical Conditioning** in Introductory **Psychology**: Needles Do Not Always Make Balloons Pop!" / Mark W. Vernoy / describes a demonstration to illustrate the **classical conditioning** response of flinching or blinking when someone stabs a balloon with a needle.
• "Preparing for an Important Event: Demonstrating the Modern View of ClassicalConditioning" / Art Kohn and James W. Kalat / demonstrates classicalconditioning where the CR was significantly different from the unconditioned response (UCR)

• "Teaching and Demonstrating ClassicalConditioning" / John Sparrow and Peter Fernald / uses an apparatus called a Conditioner to demonstrate the classicalconditioning process; presents instructional guidelines for teachingclassicalconditioning and related processes.

Videos for inclusion

Inside the Animal Mind (2000)Nature. (no longer available for purchase) If your department has a copy of this older Nature, it has several excellent examples of animal learning.

Episode Detail from TV guide: “Inside the Animal Mind,” a three-part probe of animal intelligence and emotion, begins by pondering the question “Are Animals Intelligent?” The hour is full of examples of rats, elephants and birds using their “mental maps.” Also: a dolphin is seen following a command in a way that clearly indicates it understood the command. Meanwhile, an orangutan washes clothes immediately after it sees a person doing the same thing. “Is this just aping,” asks narrator Steve Kroft, “or does this animal understand what it is doing?”


http://www.pbs.org/wgbh/nova/nature/smart-marine-m...

• This video shows learning in pinnipeds (e.g., walrus, sea lion). Examples of operant condition are shown in the school where researchers are working to understand how these animals think and learn. This video goes with the learning module, but could also be used in a discussion of the differences in human and animal intelligence.


• Do animals have a moral sense? To determine if dogs feel guilt researchers set up an experiment where a dog is told not to eat the treat. Then, while the owner is out of the room, the researcher takes the street. When the owner returns the dog is chastised and acts guilty. But the dog did nothing, so is reacting to the tone/words of the owner. The dogs have been conditioned to respond this way. A second experiment is to determine is dogs understand fairness. The first dog is trained by placing a paw, but no reward is given. Then
a second dog is brought in. When the second dog correctly places his paw, he gets a reward. After several trials, the first dog stops cooperating without a reward. The final two experiments in this clip are about empathy in animals and involve Bonobos and Rats.

- The full episode is available and includes stories of animal intelligence: http://www.pbs.org/wgbh/nova/nature/what-animals-

2014 NOVA: Inside Animal Minds (purchase only no streaming)

http://www.shoppbs.org/product/index.jsp?productld...

- The description is similar to the 2000 series of the same name that is no longer available. The PBS description is: “What would it be like to go inside the mind of an animal? Now, the revolutionary science of animal cognition is revealing hard evidence about how animals understand the world around them, uncovering their remarkable problem-solving abilities, and exploring the complexity of their powers of communication and even their emotions. In the three-hour special “Inside Animal Minds,” NOVA explores these breakthroughs through three iconic creatures: dogs, birds, and dolphins. We’ll travel into the spectacularly nuanced noses of dogs and wolves and ask whether their reliance on different senses has shaped their evolution. We’ll see through the eyes of a starling in flight and test the tool-using skills of one of the smartest birds, the crow. We’ll listen in as scientists track dolphins in the Caribbean and elephants on the African savannah, trying to unlock the secrets of animal communication. As we discover how researchers are pushing the animal mind to its limits, we’ll uncover surprising similarities to—and differences from—the human mind.”

2011 The Brain: A Secret History – Emotions; Bandura Bobo Doll Experiment

- YouTube (5 minutes): https://www.youtube.com/watch?v=zerCK0IRjp8
- Vimeo (full documentary – 60 minutes): http://topdocumentaryfilms.com/brain-secret-histor...
- This video clip is from a documentary that originally aired on BBC. It is not currently available from the BBC, but in addition to the two links above there are other sites that list it as available for streaming.
- BBC synopsis: Dr Michael Mosley continues his exploration of the brutal history of experimental psychology. Experiments on the human mind have led to profound insights into how our brain works - but have also involved great cruelty and posed some terrible ethical dilemmas. In this film, Michael investigates how scientists have struggled to understand that most irrational and deeply complex part of our minds - our emotions. Michael meets survivors - both participants and scientists - of some of the key historical
experiments. Many of these extraordinary research projects were captured on film - an eight-month-old boy is taught to fear random objects, baby monkeys are given mothers made from wire and cloth, and an adult is deliberately violent before a group of toddlers. Michael takes part in modern-day experiments to play his own small part in the quest to understand emotions.

Outside Resources

Video: Albert Bandura discusses the Bobo Doll Experiment.
https://www.youtube.com/watch?v=eqNaLerMNOE

Evidence-Based Teaching


Examined the effect of using application questions presented orally in a classroom situation. During the 8th and 9th weeks of the semester, 154 undergraduates in a general psychology course were exposed to one of two instructional approaches during two 1-hr small-group discussion sessions. After watching a training film emphasizing applications of classical and operant conditioning concepts, Ss in the treatment group were asked questions that required
them to apply basic principles and information from the lecture and readings. Ss in the control group watched 2 films covering the same topics without discussion. Ss were scored on a 50-item multiple choice test administered the following week, 30 items of which pertained to classical and operant conditioning. Results show that treatment Ss scored higher than controls on factual questions, but not on application questions. Although the difference for correctly answered factual questions was small, it represented 25% of items measuring this variable. Asking students to apply principles was beneficial only to the extent that it helped make questions more personally relevant, leading to improved retention of factual material.

OPERANT CONDITIONING


Students typically struggle to understand operant conditioning concepts. However, no well-designed experimental research exists examining the efficacy of popular media in teaching these concepts. The present randomised, double-blind experiment examined the impact of using exemplars of operant conditioning concepts (positive and negative reinforcement and positive and negative punishment) from popular television on learning operant conditioning concepts in a group of 171 undergraduate students enrolled in introductory psychology classes. The experimental group indicated more enjoyment of the educational session but scored only marginally higher on a learning assessment of basic operant conditioning concepts.


This study is a content analysis of the presentation of operant conditioning in introductory psychology textbooks and their companion Web sites to discover if these information sources assist student learning or add to confusion. Results indicate that the failure to refer to changes in the likelihood of the organism's behavior when discussing operant conditioning was extremely common; this problem should be remedied to reduce students' misunderstandings.

Suggestions from the Society for Teaching's Introductory Psychology
POSSIBLE ASSESSMENTS (Out of Class)

Literature Search: Have each student choose a learning phenomenon discussed in the module. Students should then perform a literature search, locate one article, and describe how the chosen phenomenon can be applied to common human experience. The benefit of this assessment is that it allows students to come in contact with primary readings. In addition, it allows them to make connections between the “science” and everyday life. In my experience, this assignment works best for students that have already been exposed to empirical articles and databases such as Psychinfo earlier in the semester. (LO 1.2a, 1.3) Scavenger Hunt: Ask students to identify principles of learning as observed in their own experience. Alternatively, you could instruct them to visit the local zoo, mall, or any other public location. The following principles could be included: classical conditioning, positive reinforcement, shaping, schedules of reinforcement, negative reinforcement, positive punishment, negative punishment. This is an activity that has been very well received in my courses (I frequently send students to the St. Louis Zoo for this assignment). In addition, it forces students to do more than just memorize definitions – they have to apply those concepts and identify unique examples. (LO 1.2a, 1.2di, 1.3) Behavior Modification Project: Ask students to identify a target behavior that they would like to change. Students should state a behavior change goal as well as outline how they would apply one of the behavior change procedures learned in class (e.g., positive reinforcement). Depending on time, you could ask students to collect baseline data, and then continue to collect data while implementing the behavior change procedure. This is another activity that is relatively easy to implement and is typically enjoyed by students. I often provide examples of behaviors

ACTIVITIES & TECHNIQUES (In Class)

Shaping: Ask one volunteer to leave the room briefly. The remaining students should pick a simple behavior such as standing behind the podium, writing on the chalkboard, or turning the lights off/on. The remaining students should also decide on a “reinforcer” such as tapping on their desks or stomping their feet. When the volunteer returns to the classroom, instruct
him/her to move around the classroom earning as many reinforcers (taps, stomps) as possible. Alternatively, you could use the software *Sniffy the Virtual Rat* to shape behavior as a class. A demonstration version of the software is available at [http://www.wadsworth.com/psychology_d/templates/st... niffy/download.htm](http://www.wadsworth.com/psychology_d/templates/st... niffy/download.htm)

Podcasts: There are a number of interesting podcasts available at [www.thepsychfiles.com](http://www.thepsychfiles.com). These podcasts could be used as starting points for in-class discussions or alternatively, assigned as homework.

**PowerPoint Presentation**

Chapter 6: States of Consciousness
This module covers a wide range of concepts related to human states of consciousness. These include levels of awareness, hypnotism/trance, sleep, and psychoactive drug states. In some ways, this module is unusual in the disparate topics presented and some instructors may feel more comfortable presenting some material (eg. Sleep) than other material (eg. Hypnosis/trance). The topics in this module are generally of interest to students because sleep, daydreaming and other states of consciousness are experiences to which they can easily relate.

### Learning Objectives

- **Relevant APA Learning Objectives (Version 2.0)**
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology's content domains (1.2)
  - Describe applications of psychology (1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
  - Demonstrate psychology information literacy (2.2)
  - Build and enhance interpersonal relationships (3.2)
  - Adopt values that build community at local, national, and global levels (3.3)

- **Content Specific Learning Objectives: States of Consciousness**
  - List the various levels of awareness and articulate how they differ
  - Explain the phenomenon of priming
Understand how the Implicit Associations Test (IAT) can be used to measure non-conscious states

○ Explain the flexible correction model

○ List the stages of sleep and understand their unique features

○ Describe the effects of various classes of drugs on consciousness

Abstract

States of Consciousness: No matter what you’re doing—solving homework, playing a video game, simply picking out a shirt—all of your actions and decisions relate to your conscious awareness of the world. As frequently as we use it, have you ever stopped to ask yourself: What really is consciousness? In this module, we discuss the different levels of consciousness and how they can affect your behavior in a variety of situations. We divide consciousness into low awareness states such as daydreaming and high awareness states such as deliberating. We also explore the role of consciousness in other, “altered” states like hypnosis and sleep and the influence of psychoactive drugs.

Class Design Recommendations

This module can be taught in one 60-minute class, or two shorter class periods (45 to 60 minutes). If it is taught in two class periods, we suggest using one period for: overview of the topic, levels of awareness, priming studies, mindfulness, and hypnosis; and a second period for: sleep and psychoactive drugs. Please also refer to the Noba PowerPoint slides that complement this instructor’s manual.

Overview

• Warm-Up Discussion: What is consciousness and who has it?
• High and Low States of Awareness
• Hypnosis/Trance
• Sleep
• Psychoactive drugs
Module Outline

What is consciousness?

- Simply put consciousness is awareness; awareness of the self and of the environment. This simple definition, however, raises a number of questions. Principle among these is the question of whether all awareness is qualitatively the same. A simple inventory of daily behaviors suggests that consciousness can be divided into distinct states: daydreaming, for instance, is less self-aware than is a weightlifter looking into a mirror trying to perfect her technique. Consciousness exists on a continuum:

Death----- Coma---- Sleep ------ Daydreaming ------High Awareness/Mindfulness

In addition, there are altered states of consciousness that do not exist on this awareness continuum but are, rather, defined by their deviation from normal patterns of perceiving. These are most commonly brought about through artificial means such as hypnosis/trance or the use of psychoactive drugs.

High Versus Low Awareness

- People constantly track sensory stimuli such as the direction and speed of movement or the distance of sound. It is impossible, however, to track all possible stimuli. As a result, humans focus their attention and this focus represents the most mindful, highest state of consciousness. An example of high awareness might be evaluating the livability of an apartment during a tour by the landlord. Mindfulness can be learned through training such as meditation and can help people sustain and direct attention.

- To conserve mental effort people often reduce their focus and rely on behavioral habits and cognitive heuristics. One example of this is driving on “auto-pilot” in which a person might travel from home to university without being highly aware of the route or particular sights along the way. Even when people are in lower states of consciousness, however, they are still able to process sensory stimuli. Some examples: a sleeping person might swat a fly off his arm, you might stop for a red light even though you are immersed in a daydream, you might hear your name spoken nearby even though you are attending to a different conversation (the cocktail party effect).

How can we study non-conscious states?
Conscious states such as emotions and preferences are fairly straight-forward to investigate because we can rely on self-report measures. Although these are not without their limitations people tend to be reasonable reporters of their own high conscious states and experiences. But, what about states of low consciousness (both non-conscious and un-conscious states). To research these we need to turn to other methodologies:

- Behavioral observation is one method to explore states of consciousness that the research participant may not, him or herself, be aware. For instance, researchers could watch body language as strangers interact with one another or video people while they sleep (with their permission of course!). Although these methods are not specifically mentioned in the module they may be helpful in teaching this content.

- Implicit Associations Test (IAT). Introduced in the 1980s by Greenwald and his collaborators, the IAT, is a computer reaction time test. It can measure judgments to the thousands of a second. For instance, a photo of an ice-cream cone might appear on screen and the participant has to categorize this object as "good" or "bad" by hitting one or the other of two keys. It is possible to counterbalance the order of stimuli as well as whether the good or bad button is hit with the left or right hand to control for possible complications related to handedness. The IAT has been used, especially, in measuring implicit biases such as those involving ethnicity. One of the benefits of the IAT is that it is very difficult to fake. For example, researchers can throw out any responses that appear too deliberate (those, for example, that have a reaction time of longer than 800 milliseconds). Only rapid, non-conscious judgments are included.

Sleep

Everyone sleeps. Relative to some other animals humans sleep fewer hours (we sleep, on average, 8 hours in a 24 hour period while tigers sleep about 16 and mice sleep about 12). In addition, animals differ in the periods during a 24-hour cycle when they prefer to sleep. Humans are diurnal and experience wakefulness during daylight hours. Some animals, such as raccoons, tigers and skunks, are nocturnal; experiencing their hours of peak wakefulness during the night. Still others, such as some owls and wild cats, are crepuscular and experience wakefulness during twilight hours (typically, these are predators and the dim light acts as a hunting advantage).

Sleep is a drive state (see the Noba module on Drive States), meaning that sleepiness is a need that can only be satisfied by sleep. Although people can temporarily postpone sleep
they cannot do so indefinitely. Drowsiness occurs when circadian rhythms—the body’s natural rhythms based on sleep habits and exposure to daylight—signal the time for the production of melatonin, a hormone associated with sleep. These rhythms can be changed, or disrupted, through long-distance travel, extended periods of wakefulness, or night-shift work. The phenomenon in which people have a difficult time adapting to the “normal” sleep schedule of a new geographic location is called jet lag. At the extreme, there are a number of sleep disorders such as insomnia and narcolepsy.

Sleep can be divided into several distinct stages. Each of these is associated with a unique profile of brain activity in terms of both electrical amplitude (intensity) and wave frequency. Interestingly, dreaming—the phenomenon that occurs in deep, REM (rapid eye movement) sleep is associated with brain waves that are more similar to those of wakeful states than are the wave patterns of other stages of sleep.

Sleep serves a variety of functions. Notably, it is a period of physical and mental rest for people. But resting is not the only function of sleep. Human babies require many hours of sleep and it appears that sleep supports growth. Sleep deficits are associated with a variety of impairments including memory problems, slower cognitive processing, irritability, and obesity. These deficits suggest the possible cognitive functions of sleep.

Psychoactive Drugs

Across both history and culture humans have used psychoactive substances to alter their states of consciousness. In many traditional societies naturally occurring plants such as peyote have been used in spiritual and religious ceremonies, or are associated with shamanistic rites. Other plants, such as the leaves of the cocoa plant (from which cocaine is processed) have been used more recreationally for the euphoria they induce. Caffeine, the mild stimulant found in coffee and tea and chocolate, is the most widely used psychoactive substance in the world. Alcohol is also widely used.

Drugs can be divided into different classifications based on their general effects on the human nervous system. Three of the most common categories—and those presented in this module—are: hallucinogens, depressants and stimulants. Although alcohol is a depressant it is common enough—and often relevant enough to students—that it is covered in its own section. As their names imply hallucinogens are those that produce hallucinations or otherwise warp perceptions of time or reality. LSD (acid) is an example of a hallucinogen that is associated with seeing visions of geometric patterns, pulsating surfaces, vivid colors, and the experience of synesthesia (the mingling of the senses). Depressants are those drugs that slow the nervous system. These include, but are not limited to, opioids (drugs derived from opium) such as
morphine and heroin and are often used medically as pain killers as well as recreationally. Finally, stimulants are substances that accelerate the nervous system. Drugs such as “crystal meth” (methamphetamine) and cocaine are examples of drugs that produce euphoria, restlessness, pressured speech, and more loosely organized thinking. Caffeine, found in coffee and tea, is a mild form of stimulant.

Flow

Although the concept of flow is not specifically listed in the module or in the PowerPoint some students might bring it up. Flow is a concept studied by Mihalyi Csikszentmihalyi and his colleagues. Csikszentmihalyi was an avid rock climber and chess player and noticed, as many others have, that these activities are often psychologically absorbing. Many people who engage in such activities lose track of time and are highly focused, even losing a sense of the self as being distinct from the activity. This is often called “being in the zone.” Csikszentmihalyi offers a theory of flow in which it occurs when there is an optimal match of a person’s skill level to the challenge at hand. If the challenge is too difficult they likely experience frustration or anxiety and if the challenge is too easy they experience boredom.

Difficult Terms

Circadian Rythms
Dissociation
Euphoria
Hallucinogens
Implicit Associations Test
Melatonin
Priming

Lecture Frameworks

We recommend starting the class with a discussion that will engage students by bringing the module material into the realm of their everyday experience. States of Consciousness is one module where students have ample personal life experience upon which to draw: they have all “zoned out,” all been asleep, and many have tried coffee or alcohol. Some may even have
been knocked unconscious, taken a meditation course, or have been hypnotized. This personal connection to the material is an opportunity to make this area of psychology seem relevant. You can also tie the themes of this unit—awareness and attention, for example—in with other units such as sensation and perception.

• **Warmup:** There are several discussion prompts that could be used as warmups to this topic. See Activities & Demonstrations below

• **Direct Instruction:** Refer to the PowerPoint slides for the following major topics: the definition of consciousness, high and low levels of awareness

• **Activity/Demonstration:** To cover how attention can be focused see the awareness scan activity in the PowerPoint demonstration

• **Direct Instruction:** Refer to the PowerPoint slides to talk about priming and non-conscious states, as well as the Implicit Associations Test (IAT) used to study bias and other states of consciousness.

• **Activity/Demonstration:** To help students understand that one level of awareness (high or low) is not inherently superior to another (rather, they are both appropriate to different situations) it can be helpful for them to reflect on costs and benefits. Refer to the PowerPoint slide on the costs and benefits of awareness.

• **Direct Instruction:** Refer to the PowerPoint slides to talk about hypnosis.

• **Direct Instruction:** Refer to the PowerPoint slides to talk about sleep, its stages and functions, and dreams.

• **Direct Instruction:** Refer to the PowerPoint slides to talk about psychoactive drugs: hallucinogens, depressants, stimulants and alcohol

• **Activity/Demonstration:** To help students engage with the topic of psychoactive drugs it may be helpful to concentrate on commonly used and legal drugs such as caffeine and alcohol. See the PowerPoint slides for discussion prompts around these topics

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### Activities & Demonstrations

**Who is Conscious?**

• **Time:** 5-10 minutes
• Discussion: no materials required
• Directions:

1. Here, the instructor can have students pair up or work in small groups to discuss the question “Who is conscious?” You can read a list of candidates or present them all at once. Some possible examples include: dogs, babies (humans), people while reading or watching a movie, people while sleeping. Even if students acknowledge that, yes, all of these are examples of consciousness push them deeper by suggesting elements of consciousness such as “self-awareness” and “scanning versus focused attention.” Instead of having them consider consciousness as a dichotomous variable encourage them to think about it on a continuum. In this way they can evaluate the four examples above and discuss where on the continuum they lie and which qualities are implicated in positioning them on the continuum.

2. Main Learning:

◦ Consciousness is not on-off, it is a continuum.
◦ Consciousness includes self-awareness and the focus of attention
◦ People (and other animals) differ in their overall ability to be conscious but also human consciousness shifts throughout the day from activity to activity.

Researching Non-Conscious States

• Time: 10 minutes
• Discussion: Can be introduced when discussing low awareness, the IAT or priming
• Directions:

1. Ask students to form small groups and then ask them to consider how they might go about investigating non-conscious states. You might set the stage by pointing out that people can self-report on many conscious states—such as political preferences—but that self-report is difficult or impossible for non-conscious states.

2. Give each group a prompt to consider. How might they go about studying: 1) the thoughts or learning process of children under 2; 2) The ability of sleeping people to sense the environment around them; 3) subtle biases about classes of people such as various nationalities, ethnicities, or homeless people; 4) mind-wandering while reading; 5) the amount of background sound a person remembers during a single class period; 6) the
content of a person's dreams. More than one group might address a particular example.

3. Main Learning:

○ In some cases, people are asked to self-report while in a highly aware state (e.g., reporting on dreams, or reporting on reading comprehension after reading a chapter). This has the problem of potentially filtering the actual experience through the limited conscious focus.

○ In some cases, observation of behavior might be best (watching infant behavior, or watching a sleeping person react to stimuli such as scratching or moving away from light)

○ In some cases, inducing a non-conscious state and tracking behavior might be useful. Two examples of this are priming studies and the IAT. Both are difficult to fake because the participant is blind to the research hypothesis and—presumably—the mechanism by which these methods work.

Disregard this Information

After going over the functions of each of the 4 Lobes of the Brain presented on the accompanying slide, administer a quick quiz to test the students' knowledge.

• Time: 5-10 minutes
• Materials:
• Directions:

You have all seen television programs or movies in which a person is on trial. Sometimes a witness offers a piece of objectionable testimony and the judge instructs the jurors to disregard the testimony. Is it possible for them to do so? To examine the degree to which this is possible let's conduct an in-class experiment:

• Overview: Liza has a certificate in computer programming and two years of experience with a wide range of programming projects. She is applying for a job as a computer programmer and you have been asked to review her application and make a determination about hiring her. She is also a very honest person. She once informed an employee of a bank that he accidentally gave her four times the amount of money that she had requested. She returned the extra money, which would not have been otherwise traced back to her.

• Scenario One: It turns out that you have been given this information when you should not have been. This information about Liza being honest and returning the money is
confidential. You should disregard this information in making your determination.

- Scenario Two: It turns out you have been given some of this information when you should not have been. This information about Liza being honest and returning the money is a mistake– it is a story about a different individual and never happened to Liza. You should disregard this information in making your determination.

---In which scenario do you think it would be easier to disregard the information? Why?

Note: If the students say “scenario two” it is because it is easier to disregard info that is inaccurate. This is the heart of the flexible correction model. If an individual is aware that certain information is biasing an attitude– such as current emotional state– it can be more easily dismissed and counter-acted as incorrect information and disregarded. Solicit examples from the class (knowing you are too hungry to make a good decision; knowing pressure from your parents is affecting your attitude; knowing that stereotypes– of homeless people, for instance– color your opinion).

**Additional Activities**

Sleep – 10 Things to Hate About Sleep Loss

- Time: 15 minutes
- Directions:

Here are the several negative effects of sleep loss listed in the article:

- Linked with depression
- Linked to aging appearance in skin
- Increases forgetfulness
- Linked to weight gain
- Linked with risk factors for death, such as cardiovascular disease
- Impairs judgment about sleep habits!
• Associated with increase in traffic accidents
• Impairs attention
• Kills sex drive

1. Using these effects of sleep loss as targets you can engage students in a number of ways. First, you can present the list as a true-false quiz, asking them which are real research findings (all of them are). Then, in small groups students can access and read the on-line article (and follow through any links that arouse their curiosity) to learn the answers for themselves.

2. Second—an alternative activity—you can have students take stock of their own sleep habits. Begin by having them chart the activities of a typical day (or, of the previous day):

What time did you wake up?

What did you do between waking up and breakfast (whatever you consider breakfast to be)?

What did you do in the morning hours between your breakfast and noon?

What did you do between noon and your evening meal (when was your evening meal)?

What did you do between your evening meal and the time that you began preparing for bed?

How long did it take you from the time you began preparing for bed until the time that you turned off the lights to go to sleep?

What time did you sleep and how much sleep did you get?

Using this daily activity log as a basis you can ask students to reflect on how typical this day was (the more typical the better) and how much sleep they got. If the answer was fewer than 8 hours, and especially if it was fewer than 7 they likely suffer from some of the problems associated with sleep loss. Have them access and read the target article and reflect on the various ways that sleep loss might affect them personally. Optionally, you can then have them either discuss reactions/insights with a partner OR write an “optimal day” in which they recreate the activity log in a more optimal way that would promote better sleep habits (this may mean more organization, sacrificing an activity, etc).

The Invisible Gorilla and Other Attentional Gaffs: In-Class Activity
Although it is not explicitly addressed in this module, there are a number of failures of awareness. Because attention acts like a spotlight, people who “focus their beam” on one thing might fail to notice other things. Below are two demonstrations of this. You might also want to refer to the Noba modules on attention (http://nobaproject.com/modules/attention) and Failures of Awareness (http://nobaproject.com/modules/failures-of-awareness).

ACTIVITY 1: RETURN OF THE INVISIBLE GORILLA

- Time: 5 min
- Materials: You will need the ability to project a video and use this video link: https://www.youtube.com/watch?v=IGQmdoK_ZfY
- Directions:

  1. In the original—and now pretty famous—video viewers are instructed to count the number of passes players dressed in white successfully complete. This forces them to concentrate on “white” players and ignore players dressed in black. In the middle of the video a person in a gorilla suit walks through the game, beats his or her chest, and walks off. About 50% of viewers fail to notice the gorilla entirely.

For this activity cue the “Monkey Business Illusion” video. It contains the same invisible gorilla illusion and will be good for students who have never been introduced to this demonstration. For students who are familiar with the invisible gorilla illusion this video will still have a few surprises! Just set it up as if you are doing the original invisible gorilla demonstration by saying, “It can be difficult to focus attention. In the following video you will be asked to keep track of how many successful ball passes there are.” Then play the video: the video also gives clear instructions for the viewer.

Main learning:

- Although the correct number of passes is listed at the end, some people will have counted different numbers of passes. This, in itself, is interesting and relates to accurate perception and eyewitness testimony.

- For some students who are not familiar with the original invisible gorilla illusion this video replays and they will have an opportunity to see the person in the monkey suit. Some students will have seen it but others will be amazed that they missed it.

- Of those students who smugly are on the lookout for the gorilla because they are familiar with this demonstration some will miss the two new changes (the background curtain
changes colors and one player leaves the game).

Finish by having students share reactions to this demonstration. They may ask you to play the entire video a second time.

ACTIVITY 2: CHANGE BLINDNESS

• Time: 5 min
• Materials: You will need the ability to project a video and use this video link: https://www.youtube.com/watch?v=ubNF9QNEQLA
• Directions:

1. Play the short video clip. In the first half of the video an “inspector” questions presumed suspects in a television murder. Then, at the halfway point the video plays again, but this time it reveals that there were 21 changes made during the original questioning. It is possible that some students will have noticed some of the changes but unlikely that they will have noticed all of them. The changes include a new portrait in the background, a new clock on the ground and—perhaps most dramatic—a new dead body on the ground!

Ask students for their reactions. Ask about why they believe they did or did not notice specific changes (called change blindness). They may want you to play the clip again!

Outside Resources

App: Visual illusions for the iPad.
http://www.exploratorium.edu/explore/apps/color-uncovered

http://www.hup.harvard.edu/catalog.php?isbn=9780674013827

https://mitpress.mit.edu/books/illusion-conscious-will

Information on alcoholism, alcohol abuse, and treatment:
http://www.niaaa.nih.gov/alcohol-health/support-treatment

The American Psychological Association has information on getting a good night’s sleep as well as on sleep disorders

The LSD simulator: This simulator uses optical illusions to simulate the hallucinogenic experience of LSD. Simply follow the instructions in this two minute video. After looking away you may see the world around you in a warped or pulsating way similar to the effects of LSD. The effect is temporary and will disappear in about a minute.
https://www.youtube.com/watch?v=y2zBNXW7Xtl

The National Sleep Foundation is a non-profit with videos on insomnia, sleep training in children, and other topics
https://sleepfoundation.org/video-library

Video: An artist who periodically took LSD and drew self-portraits:
http://www.openculture.com/2013/10/artist-draws-nine-portraits-on-lsd-during-1950s-research-experiment.html

Video: An interesting video on attention:
http://www.dansimons.com/videos.html

Video: Clip on out-of-body experiences induced using virtual reality.
https://youtu.be/4PQAc_Z2OfQ

Video: Clip on the rubber hand illusion, from the BBC science series "Horizon."
https://youtu.be/Qsmkgi7FgEo

Video: Clip showing a patient with blindsight, from the documentary "Phantoms in the Brain."
https://youtu.be/Cy8FSfrrNDI

Video: Demonstration of motion-induced blindness - Look steadily at the blue moving pattern. One or more of the yellow spots may disappear:
https://youtu.be/4Aye9FWgxUg

Video: Howie Mandel from American Idol being hypnotized into shaking hands with people:
https://www.youtube.com/watch?v=f9dFLXV9hs0
Video: Imaging the Brain, Reading the Mind - A talk by Marsel Mesulam.
http://video.at.northwestern.edu/lores/SO_marsel.m4v

Video: Lucas Handwerker - a stage hypnotist discusses the therapeutic aspects of hypnosis:
https://www.youtube.com/watch?v=zepp_H6K5wY

Video: Ted Talk - Simon Lewis: Don't take consciousness for granted
http://www.ted.com/talks/simon_lewis_don_t_take_consciousness_for_granted.html

Video: TED Talk on Dream Research:
https://www.youtube.com/watch?v=y9ArPNAOHCo

Video: The mind-body problem - An interview with Ned Block:
https://vimeo.com/58254376

Want a quick demonstration of priming? (Want a quick demonstration of how powerful these effects can be? Check out:
https://youtu.be/QTTbDy3AZ9A

Web: A good overview of priming:
http://en.wikipedia.org/wiki/Priming_(psychology)

Web: Definitions of Consciousness:
http://www.consciousentities.com/definitions.htm

Web: Learn more about motion-induced blindness on Michael Bach's website:
http://www.michaelbach.de/ot/mot-mib/index.html

Evidence-Based Teaching

Attending Step Meetings as a Course Requirement: A Preliminary Investigation

Ann R. Bristow, Jennifer Provost, and Kristin Morton

Teaching of Psychology, April 2002; vol. 29, 2: pp.125-128
Abstract

Students in Drugs and Behavior courses evaluated their experiences of attending 12-step meetings (e.g., Alcoholics Anonymous). We describe the parameters of this course requirement and offer suggestions for implementation. As hypothesized, students reported that attendance at 12-step meetings increased their understanding of addiction treatment and was relevant to the objectives of a Drugs and Behavior course. These 2 dimensions were also positively correlated with students' reports of comfort attending meetings. Students wrote reaction papers addressing positive and negative feelings and issues regarding 12-step meeting attendance. We provide examples of these comments, as well as students' suggestions for increasing comfort when attending meetings, to guide instructors who might want to assign a similar activity.

Pay Attention! Demonstrating the Role of Attention in Learning

Janet D. Larsen

*Teaching of Psychology*, December 1991; vol. 18, 4: pp. 238-239

Abstract

In this demonstration, students receive one of three different sets of directions regarding what to learn about a set of stimulus cards. How attention affects memory is shown by students' tendency to recall best the characteristic they were told to remember.

Suggestions from the Society for Teaching's Introductory Psychology Primer

POSSIBLE ASSESSMENTS

*(Out of Class)*

Student Paper: (Instructor should ask students to read the article prior to class and to be prepared to discuss it. Allow 20 minutes for article discussion in class) Ask students to read
an article about the neural basis of biological rhythms (e.g., Kolb, B., & Whishaws, I.Q. (2006). An introduction to brain and behavior (2nd ed.). New York: Worth) and discuss whether or not there is a biological basis to our circadian rhythm.

Student Paper/Project: (This is a fun activity that students can complete outside of class. It allows them to apply what they learned in class to their own lives, which will make the material more relevant and thus improve their retention) Ask students to assess their level of daytime sleepiness by calling the national Sleep Foundation hotline at 1-877-BE-AWAKE. The screening uses the Epworth Sleepiness Scale used by health-care providers to determine the quality of sleep a person experiences. Once students determined their own level of daytime sleepiness ask them to write a short paper about steps they can take to improve their sleeping habits.

Student Paper: (The instructor should ask students to read the article prior to the class meeting and provide students with a list of discussion questions ahead of time so they can prepare answers at home. This could also be done as a classroom debate. Instructor should allow 30 minutes for class discussion/debate): Ask students to read an article such as Goldberg, R. (Ed.) (2005). Taking sides: Clashing views on controversial issues in drugs and society (7th ed.). Guilford, CT: McGraw-Hill and critically think about drug use and misuse. Students should develop arguments for and against the following topics: “Should marijuana be legalized for medicinal purposes?”, “Are drug treatment programs effective?”, or “Do drug addicts choose to be addicted to drugs?”

(In Class)

Student Paper: (This demonstration only take about 5-10 minutes of class time and is very effective because students can experience the concept of suggestibility first-hand). Start out with the following classroom demonstration: “Tell your students to close their eyes and imagine they are cutting a lemon...a large... sour... bitter lemon...so full of juice that it drips over their fingers onto the floor. Imagine how sucking the juice from the same fruit” (Bolt, M. (2007). Psychology instructor's resource manual to accompany David G. Myers Exploring Psychology (7th ed.). New York: Worth Publisher). Once you completed the demonstration ask students to write a short paper about what happened to them during the demonstration. “Where they salivating? Could they taste the sourness of the lemon juice in their mouths? “What does this tell you about suggestibility?” Instruct students to relate this experience to what they have learned about hypnosis and suggestibility.

Infusing diversity into the classroom (The instructor should ask students to read the article prior to the class meeting and provide students with a list of discussion questions ahead of time so they can prepare answers at home. This could also be done as a classroom debate.
Instructor should allow 30 minutes for class discussion/debate): Ask students to read articles about consciousness as they relate to aging, culture, ethnicity, race, disability, gender, or sexual orientation. Possible topics to cover include: changes in REM sleep over the lifespan, trans-like states that are induced through religious beliefs (see video clip about the whirling dervishes), the use of mind altering drugs for 39 religious purposes (Trimble, J. E., Stevenson, M.R., & Worell, J. P. (2003). Toward an inclusive psychology: Infusing the introductory psychology textbook with diversity content).

Possible article:


The authors describe how the use of peyote is an essential part of the Native American Church ceremony and theology, and discusses reasons why the use of peyote under the ‘bona fide religious ceremonies of the Native American Church act’ should be allowed.

**ACTIVITIES & TECHNIQUES**

*(In Class)*

Classroom Exercise (Instructor should allow 15-20 minutes for students to complete the test and discuss the outcomes with the class): Introduce the topic of sleep with the National Sleep Foundation's Sleep IQ test (http://www.allegiancehealth.org/content.aspx?id=1294)

Psychology in the News (Instructor should ask students to read the article and be ready to discuss it. Allow 20-25 minutes for discussion): New York Times article about the nature of free will (http://opinionator.blogs.nytimes.com/2011/10/19/what-makes-free-will-free/ )

**Videos that can be used as discussion starters:**

- The nature of consciousness (Part 1 & 2) – An introduction to the nature of consciousness (http://www.youtube.com/watch?v=Gfl9t11xEtM&feature=related and http://www.youtube.com/watch?v=wg7pguocy4Q&feature=related). (Instructor should allow 20-30 minutes to watch the videos and discuss how the scenes relate to the nature of consciousness).
- This video clip can be used to show the effects of cocaine on the brain. It illustrates how
the dopamine reward centers of the brain are activated while eating, drinking, engaging in sexual activity. Further, it demonstrates how cocaine increases the amount of dopamine released and also blocks the reuptake of dopamine and explains the consequences of using cocaine. (http://www.youtube.com/watch?v=4OS2C4NemJI ). (Instructor should allow 20-30 minutes to watch the video and discuss the effects of cocaine on the brain).

- This 7-minute video clip describes the pathology of addiction according to the theories presented in Dr. Ronald Ruden's book "The Craving Brain" (http://www.youtube.com/watch?v=K3gfzfqEre0&feature=related ). (Instructor should allow 20 minutes to watch this video and discuss the pathology of addiction).

- This video clip about the whirling dervishes can be used as a starting point for discussion about religious experiences and consciousness (http://www.youtube.com/watch?v=GJlofU-0jC0). (Instructor should allow 20 minutes to watch this video and discuss religious experiences and their effects on consciousness).

RELEVANT TOP ARTICLES

(Annotated Bibliography)


This article describes a study in which students in a drug and behavior course were asked to attend a 12-steps meeting (i.e., Alcoholics Anonymous) and evaluate its effectiveness in treating alcoholism based on what they had learned in class. Students in this study reported that attending the meetings significantly increased their understanding of addiction treatment, especially when they felt comfortable attending the meetings. Following the visit of a 12-steps meeting, students are asked to write a short paper about their experience. This activity could be incorporated into the course and would allow students to see first-hand how addition can be treated.


This article presents data from a study assessing students’ knowledge about sleep and dreaming prior to lectures covering this topic in class. The study illustrated that students have many misconceptions about sleep and dreaming. To identify misconceptions and correct them instructors may use either the Sleep and Dreams Information Questionnaire (SDIQ) or the
National Sleep Foundation’s Sleep IQ test http://www.allegiancehealth.org/content.aspx?id=1294 to gauge students’ understanding of sleep and dreaming. The surveys can also lead to a discussion about sleep disorders such as night terrors and sleep apnea.


This paper by one of the leaders in the field of consciousness provides the reader with an overview of the history of the teaching of consciousness and how it has changed over the years. It describes the concept of consciousness and why consciousness is such a mysterious topic to study. It also explains why neuroscience alone cannot explain our conscious experience and why we have to also look to more subjective ways of studying consciousness to increase our understanding of the topic. Instructor may choose to read this article to prepare for class and/or ask students to read and discuss this article in class.

**Links to ToPIX Materials**

**Books & Films:**
http://topix.teachpsych.org/w/page/39236200/Sleep%20and%20Consciousness

**Current Events/ News:**
http://topix.teachpsych.org/w/page/19980980/Consciousness%20in%20the%20News

**Video/Audio:**
http://topix.teachpsych.org/w/page/19980981/Consciousness%20Video

**Teaching Topics**

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage
Motivating Students
http://noba_project.com/documents/3_Motivating_Students_Tips.pdf

Engaging Large Classes

Assessment Learning
http://noba_project.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at
http://noba_project.com/images/shared/supplement_editions/000/000/183/States%20of%20Consciousness.ppt?1450202739.
Chapter 7: Memory
The purpose of the Memory unit is to help students understand the process of how memory works (or fails to work). Instead of a perfect recording system, our memories are complex constructions that are prone to biases and mistakes.

In the first module, “Memory (Encoding, Storage, and Retrieval)”, students are exposed to the different stages of the memory process. The bulk of this module is dedicated to explaining how encoding, storage, and retrieval act as interwoven processes that influence our memories. The Memory module concludes by tying together the information in an applied example of how students can improve their memory.

Learning Objectives

• Relevant APA Learning Objectives (Version 2.0)
  ○ Describe key concepts, principles, and overarching themes in psychology (1.1)
  ○ Develop a working knowledge of psychology’s content domains (1.2)
  ○ Describe applications of psychology (1.3)
  ○ Demonstrate psychology information literacy (2.2)
  ○ Engage in innovative and integrative thinking and problem solving (2.3)
  ○ Interact effectively with others (4.3)

• Content Specific Learning Objectives: Memory
  ○ Define and note differences between the following forms of memory: working
memory, episodic memory, semantic memory, collective memory.

- Describe the three stages in the process of learning and remembering.
- Describe strategies that can be used to enhance the original learning or encoding of information.
- Describe strategies that can improve the process of retrieval.
- Describe why the classic mnemonic device of the method of loci works so well.

Abstract

“Memory” is a single term but it applies to a number of different abilities—holding information briefly while working with it (working memory), remembering episodes of one’s life (episodic memory), and our general knowledge of facts of the world (semantic memory), among other types. Remembering episodes involves three processes: encoding information (perceiving it and relating it to past knowledge), storing it (maintaining it over time), and then retrieving it (accessing the information when needed). Failures can occur at any stage, leading to forgetting or having false memories. The key to improving one’s memory is to improve processes of encoding and to use techniques that guarantee effective retrieval. Good encoding techniques include relating new information to what one already knows, forming mental images, and creating associations among information that needs to be remembered. The key to good retrieval is developing effective cues, ones that will lead the rememberer back to the encoded information. Classic mnemonic systems, known since the time of the ancient Greeks and still used by many today, can greatly improve one’s memory abilities.

Class Design Recommendations

This module of memory can be taught in a single class period, but is optimally taught over a 2 class period (to allow time for class activities).

1st class period (50 min – 75 min):

- Introduce memory as a dynamic process with different types of memories
  - Episodic & Semantic Memories
Three Stages

- Encoding: Transforming perceptions into memories
- Storage: Maintaining memories over time (sensory storage, short-term storage and working memory, long-term storage)
- Retrieval: Getting information out

Module Outline

Introduction

- The introduction of this module highlights the memory feats of Simon Reinhard (he can remember hundreds of digits at a time!). By explaining Simon’s performance, the authors briefly introduce students to the average number of digits a person can remember (seven), that memory is not a singular term, and that there are ways to improve one’s memory.

Varieties of Memory

- This section of the module helps students understand that memory is not a singular term – there are many different types of memory, including episodic memory (the ability to remember the episodes of your life), semantic (storehouse of more or less permanent knowledge, the meanings of words in the language, and facts about the world), collective memory (memory that people in a group share), and autobiographical memory (remembering the events across the course of one’s entire life).
- This section concludes by letting students know that focus of this module is on episodic memory, which is the type of memory that most people have in mind when they hear the word “memory.”

Three Stages of the Learning/Memory Process

- This section starts with listing and defining the three stages of memory: Encoding (initial learning of information), Storage (maintaining information over time), and Retrieval (ability
to access information when you need it).

• Next, it briefly discusses two types of errors that can be made: forgetting (drawing a blank) or misremembering (false recall or false recognition). However, it is important to keep in mind that misremembering can occur at any stage (e.g., failure to encode, store, or retrieve information) and that the stages rely on each other – they are bound together.

Encoding

• Encoding is defined as the initial experience of perceiving and learning events. Typically, our physical and mental environments are much too rich for us to encode all the stimuli around us or our internal thoughts we have in response to those sights and sounds. So an important first principle of encoding is that it is selective: we attend to some events in our environment and ignore others. A second point about encoding is that it is promiscuous—we are always encoding the events of our lives. Normally these are mundane occurrences that we can remember for a short time afterwards, but soon forget. However, if something novel happens, we tend to play close attention (and therefore are more likely to remember it; referred to as distinctiveness). We also tend to remember very emotional occurrences, where we have vivid personal memories of receiving momentous news (referred to as flashbulb memories, they are often unreliable despite great confidence in their clarity).

• The next part of this section describes recoding, taking the information from one form as it is given to us and then converting in a way that makes sense to us. While it is usually helpful in aiding memory, recoding can lead to its own set of errors. Some ways to use recoding for study strategies include thinking of the meaning of events, relating these events to information we already know, creating vivid images of information, and creating distinctive memories. However, some errors can occur because during the process of recoding, we add in related events without realizing it (e.g., the Deese-Roediger-McDermot effect and pragmatic inferences).

• Finally, encoding is important in the learning and memory process. Unless an event is encoded in some fashion, it will not be successfully remembered later. However, just because an event is encoded (even encoded well) is no guarantee that it will be remembered later.

Storage

• Experiences change our brain – they leave memory traces or engrams (the two terms are synonyms that refer to the change in the nervous system that represents our experience). The basic idea is that events create engrams through a process of consolidation, the neural
changes that occur after learning over time to create the memory trace of an experience. However, memory traces are not little packets of information that lie dormant in the brain, waiting to be called forward to give an accurate report of past experience. Rather, we reconstruct past events as we remember with the aid of our memory traces but also with our current knowledge of what we think happened in the past. That is, remembering is reconstructive rather than purely reproductive.

- Sometimes between the time we learn something and when we are tested, errors are introduced, such as retroactive interference (events that occur after the event of interest will usually cause forgetting of the original event) and proactive interference (experiences that occur before an event that interferes with its retention). Retroactive interference is one of the main determinants of forgetting. One example of this is the misinformation effect, when erroneous information occurring after an event is remembered as having been part of the original event (like in eye-witness testimony).

Retrieval

- This section starts out describing the importance of retrieval - the bottleneck in learning and memory is the retrieval process. We distinguish information that is available in memory and that which is accessible. The assumption is that accessible (retrievable) information represents only a tiny slice of information available in our brains (available).

- The next section discusses what factors determine what information can be retrieved from memory. One critical factor is the type of hints or cues in the environment. The general principle that underlies the effectiveness of retrieval cues is the encoding specificity principle: cues help retrieval to the extent that they help match or recreate the original experience (e.g., a song you hear takes you back to a specific memory). However, that cue cannot match too many other experiences (cue overload principle), as it would no longer be distinctive.

- The third section of retrieval describes how psychologists can measure recall with either production tests (involving recall) or recognition tests (involving selection of correct from incorrect information like multiple choice tests). Usually, recognition tests are easier than production tests, but this is not always the case, as demonstrated by the recognition failure of recallable words.

- We usually think that retrieval is a neutral act because we implicitly believe in trace theory; we think we retrieve the memory (like taking it off a shelf) and then it is still the same (like putting it back on the shelf). However, research shows that this assumption is not so; every time we retrieve a memory, it changes. Changes can be both positive (e.g., testing effect) and negative (e.g., retrieval induced forgetting).
Further, just as retrieval practice enhances accurate memories, so will it increase errors or false memories. If we accidentally include errors in our memories, those errors become facts over time.

Putting It All Together: Improving Your Memory

To improve learning and memory, we need to encode material in a meaningful, distinctive way and to provide ourselves with excellent cues that will bring back the remembered events when we need them. To maximize retrieval, we should construct meaningful cues that remind us of the original experience, but cues that are distinctive and not confusable with other cues. We can also use mnemonic devices such as the peg word technique.

Difficult Terms

Encoding Specificity Principle
Episodic Memory
Proactive Interference
Retroactive Interference
Semantic Memory

Lecture Frameworks

Overview

This is such a fun unit to teach for so many reasons. First, there are lots of activities that you can use for the different memory principles. Second, most students have never thought about or been exposed to the knowledge that our memories are quite fallible. Third, this unit directly relates to their school and study habits – it is VERY easy for them to understand the connection between the research and how it applies to their life. We like #3 because it's a two-for-one: the students are learning about psychology AND they learn the best study techniques, which means they perform better in all their classes (including this one).

First Class Period
• Discussion/Warm-Up

• Get the students thinking by doing a quick memory activity that leverages what they read in the module about Simon Reinhard.

• Lecture – Refer to slides for the following:

  ○ To present the types of memory.

    ▪ For working memory, you can give them the definition provided in the PowerPoint, and use the example of the memory test activity.

    ▪ For semantic and episodic memory, you can use lots of examples to demonstrate the concepts.

  ○ To present the stages of learning/memory.

    ▪ Encoding: Since we can’t remember everything, our brains pick and choose. However, sometimes we encode without even thinking about it (automatic encoding). One way to illustrate automatic encoding is to ask students what they had for breakfast that morning. Assuming they ate breakfast, they will remember. Then ask them what they had for breakfast two weeks ago. Unless they eat the same thing for breakfast every day, it is unlikely they will remember (unless there was something really special about that breakfast, like having it served in bed because it was their birthday).

    ▪ Encoding failures: How do we see something every day and yet are unable to recall it with much detail? Have you ever been driving home, noticed a new store or house, and wondered to yourself how long it had been there? It happens all the time due
to encoding failure. To really drive this point home, play a game with your students –
ask them if they could pick out the “real” penny in a sea of imposters (see both slides;
below; Appendix A in the PowerPoint)

• Most students cannot pick out the real penny (only one or two per class, less than chance)
because we fail to encode the information – it’s just not important to know the details of
a penny (we just need to know that it is the copper colored coin and that it’s bigger than a
dime but smaller than nickels and quarters).

  ○ Talk about “flashbulb” memories – those memories of important or momentous events
that seem crystal clear. You can share your own (where you were when you learned
about 9/11; what you were doing when you realized you won the lottery, etc.) or ask
students to share theirs. Plus, since many flashbulb memories are at least partially
incorrect, it serves as a nice transition into storage and retrieval.

  ○ Storage: Here, it is really important to highlight that memories do not just sit in our brain
like books on a shelf, ready to be retrieved at a moment’s notice. Rather, our memory
is a reconstruction and often prone to mistakes, such as proactive and
retroactive interference. This begins the conversation about the fallibility of our memories
(if we accidentally include errors in our memories, those errors are likely to become
“facts” over time). These concepts can be difficult for students to understand, so we
suggest offering plenty of examples of each.

• Activity: Influences on Working Memory Capacity (Appendix B in PowerPoint)
• See Activity section (below)

• Lecture – Refer to slides for the following:

  ◦ To discuss retrieval: This is basically the recall stage, which can be challenging; our memories are dynamic, and are prone to change each time we retrieve them, think about them, and then “put them back.” This is elaborated on in Module 2: Eyewitness Testimony and Memory Biases (which we recommend).

  ◦ To discuss methods of measuring memory performance. The second piece of retrieval that you can emphasize is study techniques that promote memory retrieval (see the special topic section, below).

  ◦ Putting it all together: improving memory. Here, you can talk about memory techniques that promote performance.

• Lecture: Special Topic – Student Study Habits (PowerPoint Appendix B)

  ◦ One of the ways that you can start this discussion is by asking students how they study. What do they do before a big exam? Most students will say that they re-read the chapters, re-read their notes, make flashcards, highlight, etc. At this point, you can talk about how these study techniques tend to focus on encoding. By using study student techniques that focus on encoding only, they are missing a vital step in the learning/memory process: retrieval. That is, students tend to spend so much time putting information in, they forget that ultimately, they need to be able to get the information out. Without even being aware of it, they are assuming that as long as they spend enough time laboring on the encoding process, the information will be perfectly stored for later retrieval. This is your opportunity to help students let go of these misconceptions and improve their study habits.

  ◦ First, before you even make it into the classroom, check out Dunlosky, Rawson, Marsh, Nathan, & Willingham (2013). It’s a meta-analysis on the effectiveness on student study strategies (if you don’t want to read the whole paper, skip to Table 4 on page 45 where the authors rank the utility of different study techniques). The important point here, is that techniques that are passive and focus on encoding only (e.g., highlighting, keyword mnemonic, and re-reading) tend to have low utility compared to active techniques that incorporate both encoding and retrieval (practice testing and distributed practice are rated as the most effective).

  ◦ So now that you know the best practices according to empirical research, how do you communicate this to your students? One approach is to sell it to students by touting the benefits of using better study techniques – they can improve their grades AND use
their time more effectively. For example, the slide below represents three students, each studying for the same amount of time (6 hours). However, as you can see, each student divides up the time differently:

- After showing this slide, have students guess which of the fictional students had the best exam score (assuming everything else is equal). As you know from the Dunlosky et al. (2013) article, student #3 is likely to have the best test score because of the distributed practice. By presenting the information visually, it is easier for student to see that given the SAME amount of time, they can perform better if they just space out their studying a little bit.

- The other important study technique you will want to cover is the testing effect, where students study by taking practice tests. Unfortunately, when you say the word test...most students want to go running. So this technique can be harder to get student buy-in. One of the ways to frame the importance of practice testing is to explain that it serves as a form of feedback. While studying, many students do not have an accurate view of their content mastery. Because they have their notes right in front of them and they are recognizing the terms, they tend to be overconfident. By taking practice tests, it gives them a more realistic appraisal of their mastery of the material, as well as which areas they are struggling with (which leads to more focused studying). Something you might consider pointing out is that practice testing feels a lot more difficult that passive studying (because the emphasis is on retrieval) – don’t let that discourage them! That
difficulty will help them learn and retain the information for much longer.

- Activity: Mini-Writing & Memory Application
  - See Activities/Demonstrations (below) for directions.

Activities & Demonstrations

Influences on Short-Term/Working Memory: In-Class Activity

This series of activities should be done during class. In this series of mini-activities, students test their memories under different learning conditions.

- Time: 10 minutes
- Materials: See related Noba PowerPoint slides for this module
- Directions for Serial Position Effect
  - During class, tell students that they will see a list of 20 words, one word at a time. After the last word, they will see the word RECALL. Once they see RECALL, they will write down as many words as they can remember.
  - After they have had a chance to write down everything they remember, ask them a few leading questions: How many people wrote down the word table (the first word on the list)? Sugar (2nd)? What about the word body (last word on the list)? Teacher? Then ask them about words in the middle – Season? Cattle? Grass? You will see that almost 100% of students wrote the first and last words, but very few remember words from the middle of the list. You have now introduces them to the serial position effect!
- Instructions for Chunking Effect (Appendix C)
  - Before starting the activity, the class will need to be split in half (Groups A and B). Once you have split the class, have group B close their eyes. While Group B has their eyes closed, show Group A the series of numbers (the slides are animated so that each number appears individually). After a few seconds, let them right the numbers down.
Once this is complete, switch groups (Group A closes their eyes while Group B opens them). Once group B is ready, show them the same series of numbers, but this time the numbers are chunked together (the numbers are still displayed for the same amount of time). After a few seconds, let them right the numbers down.

- Now that both groups have looked at the same set of numbers (Group A saw them individually; Group B saw them chunked), ask the class how many numbers they were able to correctly recall. Of course, Group B should outperform Group A even though they saw the same numbers (the benefits of chunking!).

Mini-Writing & Memory Application: In or Out of Class Activity

- This activity can be done during class or assigned as an out of class project/homework. In this activity, students apply what they have learned in the memory unit by creating a study plan and mnemonic devices.

  - Time: 10 minutes
  - Materials: Slide with directions
  - Directions: Show students the prompt and give them enough time to read it through. You can then let them talk in small groups for a few minutes or have them start writing immediately.

- An example of prompt:

  - Create a study plan for our next Exam

- Potential questions to ask your students:

  - When will you study?
  - Where will you study? What will your environment look like?
  - How will you study? What techniques will you use?

- Other prompt examples:

  - Why is retrieval so important to learning and retention?
  - In your words and using the content we have talked about it class, explain how you would go about learning the names of everyone in this class (think about each step:
encoding, storage, and retrieval).

- Create at least 3 of your own mnemonic devices

### Additional Activities


- This activity provides a visual demonstration of the well-known limitation on information processing capacity. Students are presented with an array of dots, arranged either randomly or in patterns. A graph of students' judgments of the number of dots in each array demonstrates the limits of information processing capacity and the facilitative effect of chunking.


- This in-class activity is a demonstration of the importance of context in enhancing recall. The activity is appropriate for courses in introductory psychology, memory, or cognition. It requires about 10 minutes in one class, some data analysis on the part of the instructor outside of class, and reporting of the results and accompanying discussion in a subsequent class.


- Describes a teaching demonstration in which the names of the 7 dwarfs are used to introduce and explain basic processes of memory for an introductory psychology or cognition class. Recall and recognition are contrasted to develop an understanding of other important memory principles: organization by sound, letter, and/or meaning; the tip-of-the-tongue phenomenon; long-term memory; and short-term memory. Empirical
verifications of this teaching method, used with 66 students, found it effective in helping students master the principles of memory.


- In studying learning and memory, students are confronted with a vast number of theories and effects. Often, even as we teach them about levels-of-processing theory they cling stubbornly to study techniques that are based solely on more superficial strategies. This activity requires students to apply their knowledge of learning and memory by evaluating a set of claims about how to study effectively.


- This activity illustrates various aspects of memory. Students recall the properties from the game Monopoly and rate their amount of experience and success in playing the game on a 7-point scale. The demonstration requires little preparation and gives students a concrete example of basic memory principles. Its simplicity makes it practical for classes of all sizes.

Outside Resources

Student Video 1: Eureka Foong's - The Misinformation Effect. This is a student-made video illustrating this phenomenon of altered memory. It was one of the winning entries in the 2014 Noba Student Video Award.
https://www.youtube.com/watch?v=iMPIWkFtd88

Student Video 2: Kara McCord's - Flashbulb Memories. This is a student-made video illustrating this phenomenon of autobiographical memory. It was one of the winning entries in the 2014 Noba Student Video Award.
https://www.youtube.com/watch?v=mPhW9bUI4F0
Student Video 3: Ang Rui Xia & Ong Jun Hao's - The Misinformation Effect. Another student-made video exploring the misinformation effect. Also an award winner from 2014. https://www.youtube.com/watch?v=gsn9iKmOJLQ


Evidence-Based Teaching


- Provides instructional recommendations for promoting positive student perceptions of the efficacy and personal relevance of mnemonic strategies (MSs). Using mnemonic demonstrations can convince students of the potency of MSs and can promote their spontaneous application.


- Recent articles in Teaching of Psychology have endorsed the classroom use of various mnemonic techniques. Yet a degree of mnemonophobia (i.e., fear of using mnemonics) may persist in the minds of some ToP readers due to various lingering misconceptions. Researchers found that on all measures, mnemonic students statistically outperformed control students. These findings provide further support for the use of classroom-based mnemonic techniques.


- To apply several principles of memory covered in a first-year university memory course, the researcher developed a series of one-page self-reflection papers on memory that required students to engage with the material in a meaningful way. These short papers covered topics related to memory. Exam grades and analysis of a specific question related to the topic covered in one reflection paper support the use of this assignment to enhance memory (Encoding, Storage, Retrieval).
student learning and retention.


- An important recent finding is that testing improves learning and memory. In this article, the authors describe a demonstration that illustrates this principle and helps students incorporate more testing into their learning. The authors asked students to read one text using a Study-Study strategy and one text using a Study-Test strategy. One week later, the authors tested students' memory for both texts with short-answer quizzes. The results revealed the standard testing effect and served as the basis for a laboratory report that required students to analyze and interpret the results and to answer questions about the testing effect and the experimental design. At the end of the term, students indicated that they were engaging in more testing during their studying.


- An online survey examined psychology students' metacognitive awareness and self-reported behaviors regarding mnemonics. Results showed that most participants could define mnemonics, but only a minority could describe the cognitive mechanisms involved. Participants were more familiar with some mnemonics (acronyms and acrostics) compared to others (peg word); further, the most common sources of mnemonics were those created by the students themselves and those provided by the instructors. Usefulness of mnemonics was rated at a moderate level compared to other common study strategies. Finally, the ratings for mnemonics were positive and correlated with independent measures of metacognition as well as psychology course experience.


- Describes a game board, Monopoly, for building mnemonic memory in students of psychology. Meaningfulness, organization, association and visualization are main principles to a successful and effective mnemonic system. Two powerful mnemonics systems that are impractical in class are the method of loci, which involves learning a series of places paired with information that needs to be remembered, and phonetic peg system, which uses a code in which numeric values are replaced by phonemes. An easy way that maintains the power of these methods is the use of Monopoly (Mnemopoly) board which
is effective, since it is easy to visualize and can be organized in many ways. The Mnemopoly was compared to the other methods by giving instructions to 3 groups of students on 1 of the 3 methods. The mnemopoly system incorporated the best features of the other 2 systems, with the main advantage being its swift acquisition.

Suggestions from the Society for Teaching's Introductory Psychology Primer


POSSIBLE ASSESSMENTS (In or Out of Class)

Classic Readings

- This activity takes 30-50 minutes. The instructor should ask students to read the article prior to the class meeting and provide students with a list of discussion questions ahead of time so they can prepare answers at home.

- A list of full-text readings in various topics of psychology including articles related to memory and cognition (The Scientific American: Psychology Reader to Accompany Introductory Psychology Texts). Students can also be asked to write reflection papers based on assigned articles, which exposes them to current psychological research and theory as well as allows them to develop writing and critical thinking skills.


Student Paper/Project

- This demonstration only takes about 5-10 minutes of class time (if instructor asked students to read one of the primary articles, allow at least 15-20 minutes for discussion of the article)
To demonstrate to students how inaccurate our memories can be “ask students to close their eyes, imagine a loaf of bread (or any other familiar object such as a can of soda or carton of eggs), and then, with their eyes still closed, estimate its size with their hands. Have students then open their eyes and view their own estimates. Did they underestimate or overestimate the size of the object?” (Bolt, M. (2007). Psychology instructor’s resource manual to accompany David G. Myers Exploring Psychology (7th ed.). New York: Worth Publisher).

Research by Smith, Franz, Joy, and Whitehead (2005) demonstrated that sighted individuals typically overestimate an object’s size whereas blind people did not. Ask students to read the Smith et al. (2005) article and write a paper about their experience during the demonstration, and how their results compare to those discussed in the Smith et al. (2005) article.

**ACTIVITIES & TECHNIQUES (In Class)**

**Memory Quiz**


  - Instructor should allow 15-20 minutes for students to complete the questionnaire and discuss the outcomes in class

**Feature Film**

- Momento provides an introduction to a discussion about memory and memory loss. The scenes: “It’s like waking” (6:25 to 11:05) and “Memories can be distorted” (22:15 to 28:28) are especially impactful.

  - Instructor should allow 20-30 minutes to watch the videos and discuss how the scenes relate to memory and memory loss).
PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com/images/shared/supplementEditions/000/000/084/Memory(Encoding,Storage,Retrieval).ppt?1432931847.
The purpose of the Memory unit is to help students understand the process of how memory works (or fails to work). Instead of a perfect recording system, our memories are complex constructions that are prone to biases and mistakes.

The second module, “Eyewitness Testimony and Memory Biases”, is designed to help students understand the imperfections in the way that we create, store, and retrieve our memories. That is, even though our memories feel accurate, this module tries to help students understand the conditions under which our memories are manipulated (often intentionally). There is a special focus on the implications that misinformation and false memories have on eyewitness testimony and legal proceedings.

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology’s content domains (1.2)
  - Describe applications of psychology (1.3)
  - Demonstrate psychology information literacy (2.2)
  - Engage in innovative and integrative thinking and problem solving (2.3)
  - Interact effectively with others (4.3)
• Content Specific Learning Objectives: Eyewitness Testimony
  ◦ Describe the kinds of mistakes that eyewitnesses commonly make and some of the ways that this can impede justice.
  ◦ Explain some of the errors that are common in human memory.
  ◦ Describe some of the important research that has demonstrated human memory errors and their consequences.

Abstract

Eyewitnesses can provide very compelling legal testimony, but rather than recording experiences flawlessly, their memories are susceptible to a variety of errors and biases. They (like the rest of us) can make errors in remembering specific details and can even remember whole events that did not actually happen. In this module, we discuss several of the common types of errors, and what they can tell us about human memory and its interactions with the legal system.

Class Design Recommendations

This module of memory can be taught in a single class period or less. It can serve as a complementary application to the first module.

1st class period (50 min – 75 min):

• Overview
  ◦ What is eyewitness testimony?
  ◦ Why is eyewitness testimony an important area of psychological research?

• Misinformation
  ◦ Identifying perpetrators

• Kinds of Memory Biases
• False Memories

Module Outline

Introduction

What is eyewitness testimony? Why is eyewitness testimony an important area of psychological research?

• Eyewitness testimony is what happens when a person witnesses a crime (or accident, or other legally important event) and later gets up on the stand and recalls for the court all the details of the witnessed event.

• There is now a wealth of evidence suggesting that eyewitness testimony is probably the most persuasive form of evidence presented in court, but in many cases, its accuracy is dubious. There is also evidence that mistaken eyewitness evidence can lead to wrongful conviction. Many of the errors may be avoidable if proper precautions are taken during the investigative and judicial processes. Psychological science has taught us what some of those precautions might involve.

Misinformation

• Misinformation effect refers to when memories are contaminated by erroneous information that people are exposed to after they witness an event. Studies on misinformation in has led people to incorrectly remember everything from small but crucial details of a perpetrator's appearance to objects as large as a barn that wasn't there at all.

• Young adults are often susceptible to misinformation, but children and older adults tend to be more susceptible, even without an intention to deceive.

• Misinformation can corrupt memory even more easily when it is encountered in social situations. This is a problem particularly in cases where more than one person witnesses a crime, as evidenced by the “Eric the Electrician” study, where participants watched the “same” video, but due to the polarizing glasses they were wearing, they actually saw slightly different things. The participants’ accuracy for items they had not previously discussed with their co-witness was 79%. But for items that they had discussed, their accuracy
dropped markedly, to 34%. That is, subjects allowed their co-witnesses to corrupt their memories for what they had seen.

Identifying Perpetrators

- In addition to correctly remembering many details of the crimes they witness, eyewitnesses often need to remember the faces and other identifying features of the perpetrators of those crimes. There is a substantial body of research demonstrating that eyewitnesses can make serious, but often understandable and even predictable, errors.

- In photo spreads (line-ups with pictures), one of the individuals is the police suspect, and the remainder are “foils” (people known to be innocent of the particular crime under investigation).

- When picking a person out of a lineup, witnesses can make errors in two different ways. They can fail to pick the perpetrator out of a target present lineup (by picking a foil or by neglecting to make a selection), or they can pick a foil in a target absent lineup (wherein the only correct choice is to not make a selection). Some factors have been shown to make eyewitness identification errors particularly likely. These include poor vision or viewing conditions during the crime, particularly stressful witnessing experiences, too little time to view the perpetrator or perpetrators, too much delay between witnessing and identifying, and being asked to identify a perpetrator from a race other than one’s own.

- There are some things that improve identification outcomes. For example, investigators can put together fair lineups (the suspect and each of the foils is equally likely to be chosen by someone who has read an eyewitness description but who did not actually witness the crime). Other suggestions include “double blind” lineups, unbiased instructions for witnesses, and conducting lineups in a sequential fashion.

Kinds of Memory Biases

- Memory is also susceptible to a wide variety of other biases and errors. Importantly, these errors, once made, can be very hard to unmake. A memory is no less “memorable” just because it is wrong.

- Small errors include tip of the tongue (TOT), such as when you know an actor’s name, but you can’t quite remember it in that moment.

- Larger and more complicated errors include the finding that our expectations and beliefs about how the world works can have huge influences on our memories (we end up using our schemata).
False Memory

- Some memory errors are so “large” that they almost belong in a class of their own: false memories. False memories have consistently been produced in participants in the lab setting (e.g., participants falsely remember being lost in a mall, spilling drinks on the bride's parents at a family wedding, riding in a hot air balloon, or participating in a class prank).
- Importantly, once these false memories are implanted—whether through complex methods or simple ones—it is extremely difficult to tell them apart from true memories.

Conclusion

- Eyewitness testimony is very powerful and convincing to jurors, even though it is not particularly reliable. Identification errors occur, and these errors can lead to people being falsely accused and even convicted. Likewise, eyewitness memory can be corrupted by leading questions, misinterpretations of events, conversations with co-witnesses, and their own expectations for what should have happened. People can even come to remember whole events that never occurred.

Difficult Terms

False Memories
Misinformation effect
Mock Witnesses
Photo spreads
Schemata

Lecture Frameworks

Overview

This mini-unit can be a fun unit to teach because most students have grown up watching legal and crime shows, where the eyewitness's moving testimony puts the bad guy behind bars. As a result, students often have misconstrued ideas about eyewitnesses. Part of the fun of this...
unit is opening students’ eyes about how their (and eyewitnesses’) memories work. However, one thing to keep in mind is that this can be a delicate situation – you might have some students who did experience abuse or witness something particularly stressful, and if you are not careful with describing false memories, they may feel like you are invalidating their experience/memory.

First Class Period

• Activities: Deese-Roediger-McDermot Effect & Eye-Witness Recall
  ◦ These activities should occur a while before you actually talk about the content (i.e., you need some lag time between showing them the stimulus materials and having them report what they remember). See Activities/Demonstrations (below) for instructions.

• Discussion/Warm-Up: Refer to PowerPoint slides for the following:
  ◦ To get your students interested from the get-go, consider starting the lecture by talking about individuals affected by false eye witness (e.g., Ronald Cotton’s story is quite compelling).

• Lecture: Misinformation: Refer to PowerPoint slides for the following:
  ◦ Once you’ve got students’ interest, you can start talking about the interesting research that has been conducted in regard to misremembering (e.g., Loftus’ seminal study on how fast cars were going when they contacted/bumped/crashed/smashed into each other).
  ◦ If you did the Deese-Roediger-McDermot Effect activity, then you can use that as a discussion point here.

• Lecture: Identifying Perpetrators: Refer to PowerPoint slides for the following:
  ◦ Here, you can talk about the factors that influence a person’s ability to identify perpetrators. Unfortunately, the sad fact is that there are a lot of variables that influence our ability to correctly remember such important information.
  ◦ If you did the eye-witness recall activity, you can then use this as a discussion point.

• Lecture: Kinds of Memory Bias: Refer to PowerPoint slides for the following:
  ◦ Once you’ve introduced them to the concept of how memories are influenced by outside
information, talking about false memories becomes much easier. You can use the examples from the module, such as participants falsely remembering meeting Bugs Bunny at Disney World, going on hot air balloon rides, being left in a mall, etc. If you choose to do the Deese-Roediger-McDermot effect activity (described below), this is a good time to have a class discussion about it (many students can understand how someone else's memory is unreliable, but they often assume it only happens to others. This activity shows them first hand that they too, are susceptible to memory tampering).

- Beyond the basic studies of false memories, you can also talk about the implications of false memories in terms of eye-witnesses and the power that eye-witness testimony has in court cases (consider checking out the Innocence Project: http://www.innocenceproject.org/).

- **Conclusion:** Refer to PowerPoint slides for the following:

  - Quickly review the main points you discussed in class and consider emphasizing the reasons why psychologists care about memory (as opposed to just reiterating facts). By ending the class with *why* psychologists care about memory, you are bringing the discussion full circle.

### Activities & Demonstrations

#### Deese-Roediger-McDermot Effect: In Class Activity

This activity should be done during class. In this activity, students are expected to remember a series of words from a word list, to be recalled at the end of class or at the beginning of the next class. Due to contextual cues in the word list, many students experience misinformation/false memories.

- **Time:** 2 minutes (not including class discussion)

- **Materials:** Slide with directions

- **Directions:** If you want to do this, you have to make sure to plan ahead of time – you will need to expose students to the stimuli well before you talk about it in class. For this activity, you will display a word list for students to memorize (very similar to the activities from Memory Eyewitness Testimony and Memory Biases 161
Module 1). Give them some time to remember the word list, but do not have them write anything down. Once they have had enough time, begin lecture as normal. Towards the end of lecture, have students recall as many words as possible (have them write them down). After all students have written down every word they can remember, show the original list to students and have them check their own work, crossing out any words that were not on the original list. Then ask any students who wrote down the key word that was not on the original list (in this example, the key word is “foot”). You will see that several students raise their hand; you can then use this activity as a springboard for a discussion on misinformation and false memories. This tends to be a very effective activity for showing students how vulnerable our memories are to contextual cues and outside information.

Eye Witness Recall: In Class Activity

This activity should be done during class and occurs in two parts. In the first part of this activity, students are shown a clip from a movie or TV show. Class is then taught as normal (it’s best if you can teach something unrelated to eyewitness as it might give it away). Toward the end of class, you then give students a quiz on what they saw.

Time 10-15 minutes (5 minutes for video, 5-10 for quiz and discussion)

Materials Video, memory quiz (either via handout or overhead).

Directions If you want to do this, you have to make sure to plan ahead of time – you will need to expose students to the video well before you ask them questions about the details of the
video. For this activity, you will pick out a video that is appropriate for class (you might consider picking a clip where a small crime is committed so you can later ask about the perpetrator). Remember that you don’t want to give away the point of watching the video, so you may want to come up with some pre-text for watching the clip (e.g., Gee & Dyk, 1998, play a video of a robbery and tell students they are watching the video to “wake them up” before class). Once students have watched the video, begin lecture as normal. Towards the end of lecture, give students the eye-witness recall quiz, where they identify details about the video (e.g., what clothes the person was wearing, things they said or did, etc.).

If you don’t want to find your own video or create your own worksheet, there are some available from ToPIX (they may require flash or internet access).

- http://www.youramazingbrain.org.uk/testyourself/ey...
- http://www.psychology.iastate.edu/~glwells/theeyew... (suspect absent line-up)

### Additional Activities


- One of the more interesting applied areas in memory research is eyewitness testimony. Past research has consistently demonstrated the fallibility of eyewitness memory. This activity offers students a chance to experience and perhaps better understand this type of memory failure. This activity describes how to create an eyewitness tape from television programs or movies and the type of questions used to generate discussion. Some of the factors that the activity typically addresses are incidental versus intentional memory, time and sequence estimation, interference, stereotypes and expectation, stress and violence, face recognition, and recall versus recognition.


- Presents a classroom demonstration technique aimed at portraying memory for witnessed events. The classroom demonstration uses a readily available videotape clip of a robbery
to introduce the topic of eyewitness testimony. Students view the videotape clip and after a delay complete a multiple-choice memory test for the witnessed event. Students generally perform more poorly than they expect on the test, which leads to a discussion of the fallibility of memory for witnessed events.

Outside Resources

Video 1: Eureka Foong's - The Misinformation Effect. This is a student-made video illustrating this phenomenon of altered memory. It was one of the winning entries in the 2014 Noba Student Video Award.
https://www.youtube.com/watch?v=iMPIWkFtd88

Video 2: Ang Rui Xia & Ong Jun Hao's - The Misinformation Effect. Another student-made video exploring the misinformation effect. Also an award winner from 2014.
https://www.youtube.com/watch?v=gsn9iKmOjLQ

Suggestions from the Society for Teaching's Introductory Psychology Primer


POSSIBLE ASSESSMENTS (In or Out of Class)

Classic Readings

- This activity takes 30-50 minutes. The instructor should ask students to read the article prior to the class meeting and provide students with a list of discussion questions ahead of time so they can prepare answers at home.

- A list of full-text readings in various topics of psychology including articles related to memory and cognition (The Scientific American: Psychology Reader to Accompany Introductory Psychology Texts). Students can also be asked to write reflection papers based
on assigned articles, which exposes them to current psychological research and theory as well as allows them to develop writing and critical thinking skills.


### Student Paper/Project

- This demonstration only takes about 5-10 minutes of class time (if instructor asked students to read one of the primary articles, allow at least 15-20 minutes for discussion of the article)

- To demonstrate to students how inaccurate our memories can be “ask students to close their eyes, imagine a loaf of bread (or any other familiar object such as a can of soda or carton of eggs), and then, with their eyes still closed, estimate its size with their hands. Have students then open their eyes and view their own estimates. Did they underestimate or overestimate the size of the object?” (Bolt, M. (2007). Psychology instructor’s resource manual to accompany David G. Myers Exploring Psychology (7th ed.). New York: Worth Publisher).

- Research by Smith, Franz, Joy, and Whitehead (2005) demonstrated that sighted individuals typically overestimate an object’s size whereas blind people did not. Ask students to read the Smith et al. (2005) article and write a paper about their experience during the demonstration, and how their results compare to those discussed in the Smith et al. (2005) article.

### ACTIVITIES & TECHNIQUES (In Class)

#### Memory Quiz


  - [http://home.comcast.net/~pamelawhite0794/AP Psych/Unit 6/Forgetting Frequency Questionnaire.htm](http://home.comcast.net/~pamelawhite0794/AP Psych/Unit 6/Forgetting Frequency Questionnaire.htm).
  - Instructor should allow 15-20 minutes for students to complete the questionnaire and discuss the outcomes in class
Feature Film

- Momento provides an introduction to a discussion about memory and memory loss. The scenes: “It’s like waking” (6:25 to 11:05) and “Memories can be distorted” (22:15 to 28:28) are especially impactful.
  
  - Instructor should allow 20-30 minutes to watch the videos and discuss how the scenes relate to memory and memory loss).

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com/images/shared/supplementditions/000/000/085/Eyewitness%20Testimony%20and%20Memory%20Biases.pptx?1416598863.
Chapter 8: Motivation
9
Functions of Emotions
Instructor Manual

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This instructor’s manual is designed to provide a helpful strategy for teaching the Functions of Emotions module, focusing on three areas: (1) the intrapersonal (within us), (2) the interpersonal (with others), and (3) the social and cultural functions of emotions (within society). It focuses on the importance of emotions and their effects on individuals, behavior, and social relationships, and their function within society. It provides the instructor with discussion questions, activities, and an accompanying PowerPoint presentation to help lead a successful class.

Learning Objectives

• Relevant APA Learning Objectives (Version 2.0)
  ○ Students will describe key concepts, principles and overarching themes in psychology (1.1).
  ○ Students will describe applications of psychology (1.3).
  ○ Students will build and enhance interpersonal relationships (3.2).
  ○ Students will adopt values that build community at local, national and global levels (3.3).
  ○ Students will exhibit effective presentation skills for different purposes (4.2).
  ○ Students will interact effectively with others (4.3).
  ○ Students will enhance teamwork capacity (5.4).

• Content Specific Learning Objectives
Gain an appreciation of the importance of emotions in human life.

Understand the functions and meanings of emotions in three areas of life: the intrapersonal, interpersonal, and social-cultural.

Give examples of the roles and functions of emotions in each of the three areas described.

Abstract

Emotions play a crucial role in our lives because they have important functions. This module describes those functions, dividing the discussion into three areas: the intrapersonal, the interpersonal, and the social and cultural functions of emotions. The section on the intrapersonal functions of emotion describes the roles that emotions play within each of us individually; the section on the interpersonal functions of emotion describes the meanings of emotions to our relationships with others; and the section on the social and cultural functions of emotion describes the roles and meanings that emotions have to the maintenance and effective functioning of our societies and cultures at large. All in all we will see that emotions are a crucially important aspect of our psychological composition, having meaning and function to each of us individually, to our relationships with others in groups, and to our societies as a whole.

Class Design Recommendations

This module can be presented in one 90-minute class or in two shorter class periods (45 to 60 minutes). If it is taught in two class periods, we suggest stopping day one after the activity “Think à Pair à Share” on interpersonal functions of emotions. Please also refer to the Noba PowerPoint slides that accompany this outline.

Overview

• Introduction

  • Three functions of emotions

• Intrapersonal Functions:
Functions of Emotions

- Prepare the body for action
- Influence thought
- Motivate future behaviors

- Interpersonal Functions:
  - Facilitate specific behaviors in perceivers
  - Signal the nature of interpersonal relationships
  - Provide incentives for desired social behavior

- Social and Cultural Functions:
  - Culture
  - Worldviews
  - Cultural display rules

Module Outline

Introduction: Emotions are a strong and important part of our lives. Why do we have emotions and why are they important? They help to inform us of who we are, help us understand our relationships with other people, and guide our behavior in social interactions.

- Three functions of Emotions
  1. Intrapersonal: refers to the role emotions play within each of us individually.
  2. Interpersonal: refers to the role emotions play between individuals within a group.
  3. Social and Cultural: refers to the role emotions play in the maintenance of social order within a society.

Intrapersonal Functions: The emotions we feel allow us to make quick decisions with minimal
Functions of Emotions

thinking. Emotions...

- **Prepare** the body for action: They allow us to move to action without having to deeply process situations. The mechanisms activated by emotions include: subjective awareness, expressive behaviors, physiological reactions, action tendencies, and cognition.

- **Influence** thought: Emotions are the basis for our attitudes, values, and beliefs. They provide meaning for these systems. Emotions can also influence our thinking in helpful and unhelpful ways, facilitating or impeding concentration.

- **Motivate** future behaviors: We strive for good feeling emotions and avoid negative feeling emotions. In this way, emotions provide motivation for what we will do in the future.

Interpersonal Functions: Emotions and their expression (verbal and non-verbal) serve as signals to the people around us and, in doing so, influence them and our social interactions. Emotional expressions...

- **Facilitate** specific behaviors in perceivers: Universal social signals are conveyed through facial expressions of emotions. These signals influence how other people respond or react.

- **Signal** the nature of interpersonal relationships: facial expressions give insights into relationships that can predict long-term outcomes for those relationships.

- **Provide** incentives for desired social behavior: facial expressions are regulators of social interaction. They provide clues for how we want other people to behave.

  - Social referencing: individuals look to others to understand how to react in a given situation (for example, when babies are placed on the visual cliff).

Social and Cultural Functions of Emotion: Individuals are members of many groups, have numerous social roles, and are expected to behave in a multitude of ways, depending on various situations. Culturally moderated emotions help us engage in socially appropriate behaviors, as defined by our cultures, reducing the social complexity of our world and increasing social order.

- **Culture**: Culture coordinates and organizes our complex social world. It provides a system of meaning and information, is shared across generations, and allows people to meet basic needs of survival, pursue happiness, and derive meaning from life.

- **Worldviews**: worldviews include attitudes, values, beliefs, and norms as they are related to emotions. Our cultural background (conveyed through parenting and cultural products)
shapes our worldview about which emotions are ideal to have, to not have, and when to have them.

- **Cultural display rules**: Cultural display rules help people manage or modify their emotions. They are learned early in life and specify how to exhibit emotions in particular social circumstances.

## Difficult Terms

- Cultural Display Rules
- Culture
- Emotional Dialects
- Interpersonal
- Intrapersonal
- Social Referencing
- Universal Social Signals
- Worldviews

## Lecture Frameworks

Overview: Begin the class period with a warmup activity introducing students to facial expressions of emotions. Follow this with direct instruction on the three functions of emotions, with many discussion points. Two in-class activities are provided that may be useful for solidifying students understanding.

- **Warmup activity—Identifying Facial Expressions**: To warm the class up, try this fun and easy activity. Give student volunteers specific emotions and have the class attempt to identify what emotions are being expressed. Discussion will center around primary emotions and display rules.

- **Direct Instruction**: First, discuss why emotions are important and then present the smart graphic as a visual aid (showing the three functions of emotions: intrapersonal, interpersonal and, social and cultural. (Refer to the PowerPoint slides.)

- **Discussion**: Three discussion questions will help you lead the class through the role
emotions play in intrapersonal functions (preparing the body for action, influencing thought, and motivating future behaviors).

- **Activity—Theories of Emotion:** Although not in the text of the module, the theories of emotion are interesting and can be covered here with a relatively quick activity. In this activity, teams of students are each given one of the three theories of emotion: Cannon-Bard, James-Lange, or Schachter's Two-Factor Theory. The teams convey the meaning of the theory to the rest of the class by explaining an example of fear. The activity ends with a class discussion.

- **Direct Instruction:** Three slides in the PowerPoint cover this information. Explain how emotions facilitate specific behaviors in people, how they signal the nature of interpersonal relationships, and how they provide incentives for desired social behavior. (Refer to the PowerPoint slides.)

- **Activity—ThinkPairShare:** Use the two discussion questions and the directions on the PowerPoint slide to discuss the ideas just presented about interpersonal functions of emotions.

- **Direct Instruction:** Explain to students what culture is and how it organizes our complex social roles. Also, explain the meaning of worldview and cultural display rules. (Refer to the PowerPoint slides.)

- **Activity—Culturally-Based Emotions in Children's Books:** For this in-class activity, provide teams of students with a children's book. Have students analyze the book for culturally relevant information regarding the functions that emotions serve in society as well as display rules.

- **Wrap-up:** Complete the Recall, Summarize, Question, Connect, and Comment (RSQC2; Angelo & Cross, 1993, p.343) CAT as a wrap-up of the module (see the PowerPoint slides). In this CAT, students write short responses for each of the key words (Recall, Summarize, Question, Connect and Comment). Responses are collected and you are able to assess what major ideas stood out and what questions remain.

- **Conclusion:** Describe to students how emotions are an important part of our lives helping to inform us of who we are, to understand our relationships, and to guide our social behavior in culturally appropriate ways.
Activities & Demonstrations

Identifying Facial Expressions: To warm the class up, try this fun and easy activity. Give student volunteers specific emotions and have the class attempt to identify what emotions are being expressed. Discussion will center around primary emotions and display rules.

- Time: 10 minutes
- Materials: Pen and paper for students, flash cards with emotions written on them
- Directions:

1. Write the following emotions on index cards with the corresponding numbers.

   1. Happiness
   2. Love
   3. Sadness
   4. Disappointment
   5. Anger
   6. Relief
   7. Fear
   8. Desire
   9. Surprise
  10. Pride
  11. Disgust

2. Have 11 students volunteer to act out the emotions while the rest of the class guesses what emotion is being displayed. The actors are not to use words or their bodies, just their facial expressions.

3. Have the class write down their answers on a blank piece of paper, using the numbers 1-11.

4. Discuss the correct answers. Having the volunteers re-enact their facial expressions often gets a few laughs.

- For each emotion, how many people interpreted it correctly? Were some emotions easier determine than others? Were some emotions easier to express than others?
- The odd-numbered emotions are primary emotions associated with universally
recognizable facial expressions, whereas the others are idiosyncratic and not universally recognizable. Discussion can focus on universal expressions, cultural display rules, and emotional dialect.

Theories of Emotion: Although not in the text of the module, the theories of emotion are interesting and can be covered here with a relatively quick activity. In this activity teams of students are given one of the three theories of emotion: Cannon-Bard, James-Lange, or Schachter’s Two-Factor Theory. The teams need to convey the meaning of their assigned theory to the rest of the class.

• Time: 20 minutes
• Materials: Instructional prompt, textbooks or internet sources for research
• Directions:

1. Divide the class into teams. If you have a small class, make three teams. If you have a larger class, make 6 or 9 teams. Each team is assigned one of the three theories of emotion: Cannon-Bard, James-Lange, or Schachter’s Two-Factor Theory.

2. Give each team the instructional prompt (on a PowerPoint slide or handout). Prompt: You’re driving your car and out of the corner of your eye you see something fall into the road! Your heart starts racing and you jump. Your head jerks to the side to determine what the object was. How does the ______ theory explain how you came to experience fear?

3. Students can look up their theory using textbooks or the internet. After discussing their findings and writing them down in their teams, each group explains their assigned theory to the class, acting out the scene and physically demonstrating how their theory explains the emotion of fear.

4. Have each team demonstrate their theory. If there is more then one team assigned to each theory have them compete in a game of “rock, paper, and scissors” to decide who presents.

5. Collect the team summaries of their theories at the end of the activity and discuss what they think about each theory. Which one resonates with them (see discussion point #3 below)?

• Instructor notes for each theory:
  • James-Lange Theory: the subjective experience of fear follows the physiological response. For example, your heart races, which makes you nervous about the seen object.
○ Cannon-Bard Theory: emotions such as fear or happiness occur simultaneously with their physiological components. For example, we fear we are going to run something over which makes our heart race.

○ Schachter’s Two-Factor Theory: patterns of physical arousal and the cognitive labels we attach to them form the basis of our emotional experiences. For example, my heart reacts when I see the object fall into the road and I deduce that to be fear.

Culturally-Based Emotions in Children’s Books: For this in-class activity, provide teams of students with a children’s book. Have students analyze the book for ways emotions serve social functions in cultures and for display rules.

- Time: 30 minutes
- Materials: Children’s books, handout (see Appendix), Internet access or developmental/cross cultural textbooks
- Directions:

1. Break students into teams of 4 to 5 people. Assign each team a children’s book. You can gather the books from the library or a personal collection. If possible, use books from various cultural backgrounds. Also, try to find books whose main characters have some emotional reactions, which is often typical of children’s stories. The books should be short enough to read within 10 minutes of class time.

2. Have teams read their book aloud within their group.

3. Have teams complete the handout, analyzing the book for culturally relevant emotional information and clues about display rules. The team can use the Internet or textbooks to research cultural information (this is optional).

4. Have teams share their responses with the class at large, depending on how much time is available. Maybe one group presents their whole book and handout, or each team reports on one question apiece.

Additional Activities


- This activity has students observe nonverbal cues to try to detect deceptive behavior. Student volunteers lie in their answers to questions while others tell the truth. Some students are given hints about who is being deceptive and some are not.


- This activity allows students to see firsthand how cultures have some emotional expressions that are very similar and some that are very different. It uses unique emotional expressions that were found in Chinese literature published in the 1930s. Students are asked to guess what emotion is being depicted.


- This activity allows students to test how the activation of facial muscles influences emotions (called the facial feedback hypothesis). In addition, the activities handbook has other emotion-related activity suggestions.


- **CAT title:** Recall, Summarize, Question, Connect and Comment (RSQC2).
- **Location:** Angelo and Cross (1993, p. 343).
- **Description:** The RSQC2 CAT will help students review what they have learned and integrate new knowledge with preexisting information from the course. Complete this in class by having the students write responses to each of the key words (Recall, Summarize, Question, Connect and Comment). Collect their responses and see what major ideas stood out to the class, what questions they have, and to gain immediate feedback from the lesson.

**Discussion Points**

1. Why do we have emotions and why are they important?
The discussion here is aimed to get students warmed up by thinking about emotions and reflecting on the reading. The students might mention the importance of emotions in influencing their behavior and the behavior of others. They might also mention the cultural importance that emotions play.

2. When have you felt negative emotions so powerful that your behavior changed to avoid feeling them again? Was it in school, a relationship, or another situation?

- Ask students for specific examples to guide this discussion. They might talk about feeling negatively after failing a test and changing their behavior to study more. They might also talk about a break-up with a significant other and how this affected their behavior or the behavior of the other person. It might be helpful to have your own example prepared here to help lead the discussion.

3. Which of the three theories of emotion resonates with you? In other words, if you were the person driving the car, what theory do you think explains your fear?

- The three theories of emotion include Cannon-Bard, James-Lange, and Schachter’s Two-Factor Theory. Try to challenge the student’s initial answers so they think critically about each theory. You might take an informal poll of the class preferences.

Outside Resources


CrashCourse (2014, August 4). Feeling all the feels: Crash course psychology #25. [Video file]. Retrieved from: https://www.youtube.com/watch?v=gAMbkJk6gnE

American Psychological Association.

http://books.wwnorton.com/books/The-Feeling-Brain/

NPR News: Science Of Sadness And Joy: 'Inside Out' Gets Childhood Emotions Right

Online Psychology Laboratory: Motivation and Emotion resources
http://opl.apa.org/Resources.aspx#Motivation

Web: See how well you can read other people's facial expressions of emotion
http://www.humintell.com/free-demos/

**Evidence-Based Teaching**


- This article describes an activity in which students set up a Polygraph test to learn more about emotions and their physiological responses.


- In this exercise students visualize themselves at the end of an important relationship. They are exposed to three cognitive scenarios, making them feel either depressed, angry, or sad. The nature and extent of their emotional reactions and behavioral tendencies are discussed.

**Links to ToPIX Materials**
Activities, Demonstrations, or Handouts:  
http://topix.teachpsych.org/w/page/19980989/Emotion%20in%20the%20Classroom

Books and Films  
http://topix.teachpsych.org/w/page/39235435/Motivation-Emotion

In the News  
http://topix.teachpsych.org/w/page/24993705/Emotion%20in%20the%20News

Videos/Audio  
http://topix.teachpsych.org/w/page/19980989/Emotion%20in%20the%20Classroom

Teaching Topics

Teaching The Most Important Course  
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage  

Motivating Students  

Engaging Large Classes  

Assessment Learning  
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology  

PowerPoint Presentation
This module has an associated PowerPoint presentation. Download it at http://nobaproject.com/images/shared/supplementEditions/000/000/155/Functions%20of%20Emotions.ppt?1446510474.
The purpose of the Emotions and Motivation unit is to help students understand what emotions and motivation are, and how they can be applied to various settings.

The third module, Motives and Goals, focuses on the main theories and findings on goals and motivation. The authors address the types of goals and the various factors that influence motivation in goal pursuit. They also address goal conflict and the exercise of self-control in protecting long-term goals from momentary temptations.

### Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology’s content domains (1.2)
  - Describe applications of psychology (1.3)
  - Engage in innovative and integrative thinking and problem solving (2.3)
  - Apply psychological content and skills to career goals (5.1)
  - Exhibit self-efficacy and self-regulation (5.2)
  - Refine project-management skills (5.3)
  - Develop meaningful professional direction for life after graduation (5.5)

- Content Specific Learning Objectives: Motives and Goals
¬ Define the basic terminology related to goals, motivation, self-regulation, and self-control.
¬ Describe the antecedent and consequences of goal activation.
¬ Describe the factors that influence motivation in the course of goal pursuit.
¬ Explain the processes underlying goal activation, self-regulation, and self-control.
¬ Give examples of goal activation effects, self-regulation processes, and self-control processes.

Abstract

This module provides an overview of the main theories and findings on goals and motivation. We address the origins, manifestations, and types of goals, and the various factors that influence motivation in goal pursuit. We further address goal conflict and, specifically, the exercise of self-control in protecting long-term goals from momentary temptations.

Class Design Recommendations

This module should be taught in less than a single class period (especially if you are on a time crunch), with the unit as a whole take 1-2 class periods. Please also refer to the Noba PowerPoint slides that compliment this outline.

1st class period (50 min – 75 min):

¬ Overview
  ¬ Defining goals and motivation
¬ The Origins and Manifestation of Goals
  ¬ Goal adoption, goal priming, consequences of goal activation
¬ Self-Regulation in Goal Pursuit
  ¬ Goal deliberation and implementation, ought and ideal goals
Cybernetic Process of Self-Regulation and balancing goals

- Self-Control
  - Innate ability and limited resource
  - Identification of temptations and counteracting temptations

Module Outline

Introduction

- This module reviews key aspects of goals and motivation. The authors first discuss the origins and manifestation of goals and then review factors that influence individuals’ motivation in the course of pursuing a goal such as studying an 800-page book for an exam (self-regulation). Finally, they discuss what motivates individuals to keep following their goals when faced with other conflicting desires (self-control).

The Origins and Manifestation of Goals

- Goal Adoption
  - Commitment stems from a sense that your goal is both valuable and attainable, such that you adopt goals that are highly likely to bring positive outcomes. This process of committing to a goal can occur without much conscious deliberation.

- Goal Priming
  - Cues in the immediate environment (e.g., objects, images, words, and sounds) can influence the pursuit of goals to which people are already committed. Cues related to the goal or means will activate or prime that goal pursuit. Soon after priming, the motivation to act on a goal peaks, and then slowly declines after some delay.

- Consequences of Goal Activation
The activation of a goal and accompanying increase in motivation can influence many aspects of behavior and judgment, including how people perceive, evaluate, and feel about the world around them (e.g., when pursuing a goal such as quenching one's thirst, people evaluate goal-relevant objects, like a glass, more positively than objects that are not relevant to the goal, like a pencil).

Self-Regulation in Goal Pursuit

- **Self-regulation** refers to the processes through which individuals alter their perceptions, feelings, and actions in the course of pursuing a goal.

- **From Deliberation to Implementation**
  - Self-regulation involves two basic stages associated with two distinct mindsets: deciding which of many potential goals to pursue at a given point in time (deliberative phase) and planning specific actions related to the selected goal (implemental phase).

- **Regulation of Ought- and Ideals-Goals**
  - Research distinguishes between two self-regulatory orientations: prevention and promotion. A prevention focus emphasizes safety, responsibility, and security needs, and views goals as “oughts.” A promotion focus views goals as “ideals” and emphasizes hopes, accomplishments, and advancement needs. Emphasizing potential losses will motivate individuals with a prevention focus, whereas emphasizing potential gains will motivate individuals with a promotion focus.

- **A Cybernetic Process of Self-Regulation**
  - Self-regulation depends on feelings that arise from comparing actual progress to expected progress. In this cybernetic process of self-regulation, a smaller-than-discrepancy creates a signal in the form of positive feelings, which makes individuals reduce their efforts on the focal goal and focus on other goals.

- **Highlighting One Goal or Balancing Between Goals**
  - When people interpret their previous actions as a sign of commitment to a goal, they tend to highlight the pursuit of that goal by prioritizing it and putting more effort into it. However, when people interpret their previous actions as a sign of progress, they tend to balance between this goal and other goals and put less effort into the focal goal.
Conflicting Goals and Self-Control

- Self-control is the capacity to control impulses, emotions, desires, and actions in order to resist a temptation and protect a valued goal. As such, self-control is self-regulation in contexts involving a clear trade-off between long-term interests and some form of immediate gratification.

- Self-Control as an Innate Ability
  - There are enduring individual differences in self-control and this capacity to postpone immediate gratification for the sake of future interests leads to greater cognitive and social competence over the course of a lifetime.

- Self-Control as a Limited Resource
  - The ability to exercise self-control can fluctuate from one context to the next. In particular, previous exercise of self-control drains individuals of the limited physiological and psychological resources required to continue the pursuit of a goal (ego depletion).

- A Prerequisite to Self-Control: Identification
  - Identifying the self-control conflict inherent to a particular situation is an important—and often overlooked—prerequisite. Specifically, the successful pursuit of a goal in the face of temptation requires that an individual first identifies that she is having impulses that need to be controlled.

- Self-Control Processes: Counteracting Temptation
  - The protection of a goal involves several cognitive and behavioral strategies ultimately aimed at "counteracting" the pull of temptations and pushing oneself toward goal-related alternatives. One such cognitive process involves decreasing the value of temptations and increasing of the value of goal-consistent objects or actions. Other behavioral strategies include precommitment to pursue goals and forgo temptation, establishing rewards for goals but penalties for temptations, or physically approaching goals and distancing the self from temptations.
Difficult Terms

Cybernetic Process of Self-Regulation
Deliberative phase
Ego Depletion
Extrinsic motivation
Goal
Implemental phase
Intrinsic motivation
Prevention
Promotion
Self-control
Self-regulation

Lecture Frameworks

Overview

Think about the goals of your course; at the end of the semester, what is it you hope to achieve? One goal often adopted for the course is to help students apply best practices from empirical evidence to their own lives. In this regard, the study of motivation is of great value. Talking about motivation and goal setting can be beneficial and interesting to students (who sometimes struggle to stay motivated in difficult or boring classes). Therefore, as you prepare this lecture, consider how each domain could apply to students. One way to make sure your students see the connection between the research and their lives is for you to use student-based examples for each of the concepts in the module (e.g., when talking about temptation, you could talk about common temptations students face, such as socializing instead of studying, or putting off writing a paper in order to play video games).

- Warm-Up/Introduction
  - With the above information in mind, you can start class by asking students to reflect on their own goals – what is important to them? What do they hope to achieve while in college? In the next 10 years? In their lifetime? Once you’ve given them the chance to think about their own goals, you can start defining and explaining goals and motivation (motivation should be somewhat of a review from the first module in this unit).
• Lecture – Refer to slides for the following:

  ○ To introduce the origins and manifestation of goals. Now that you’ve set the stage with your overview of goals and motivation, you can start talking about goal adoption, goal priming, and consequences of goal activation. You can expect lots of engagement with students around these issues because they are so relevant to daily life.

• Activity: Goal Setting

  ○ To illustrate these points, you can have students reflect back on their own goals from the beginning of class (e.g., ask them about whether their goal is valuable and attainable and if it was a conscious deliberation). Another option is to use their role as student (as most students have the goal of performing well in school). For example, you could take about their academic goals and goal priming (i.e., ask them about cues in their immediate environment that influence their goal pursuit).

  ○ See Activities/Demonstrations for instructions.

• Lecture – Refer to slides for the following:

  ○ To discuss self-regulation & self-control. These concepts are perfect for using the student goal example, as many students struggle with self-regulation and self-control when it comes to their study habits. First, you show a quick video from the Marshmallow experiment mentioned in the module and discussed below (under Activities/Demonstrations). After watching the video and discussing self-control more thoroughly, you can bring up the importance of identification. This will likely hit home for many students, who often underestimate the cumulative effects of choosing other activities over coursework.

  ○ Finally, you can conclude this module with a discussion on how to counteract temptation (e.g., avoiding temptation from the get-go, such as studying at the library instead of in a dorm room with the door open for visitors).

Activities & Demonstrations

Psychology Applied: Goal Setting (In-Class Activity)
This mini-writing activity can be completed during class. For this activity, students will be setting goals for themselves (sometimes it's nice to encourage them to set goals for your class or their academics).

- **Time:** 10 minutes
- **Materials:** pen and paper for students
- **Directions:**
  - Have students write a goal they have for themselves.
    - You can let them set any goal they want (i.e., a goal to lose weight, become a star athlete, perform in Times Square, etc.) or you can direct them to make a class or academic specific goal (e.g., earn an 87% in this class, earn a 3.8 GPA this semester, etc.).
  - Once the goal is written have them identify cues in their immediate environment (goal priming), how they will self-regulate, and how they will counteract temptations (self-control).

**Additional Activities**


- This activity is designed to help students experience various emotional responses, identify techniques in the learning process, and become aware of individual motivational factors evident during the activity. This activity provides a framework on which you can build a variety of discussions. You must give thought to the specific concepts you wish to illuminate and shape the instructions accordingly (e.g., emphasizing competition or group processes). Although the author recommends the prior assignment of appropriate test chapters, the activity could be used as an introduction to the topic. Some preparation is necessary. The activity could be used with classes of any size, if the work space permits.

- The purpose of the following activity is to help students understand the meaning of motivation as defined by Maslow, to consider the behaviors and consequences of behaviors arising from various motives, and to begin to recognize such processes in their own lives. This activity is very flexible, allowing variations in the specific motive(s) emphasized. As preparation, you must acquire the reading materials, videotape, and other items. No prior knowledge of psychology is necessary. The activity can be used with classes of any size.

**Evidence-Based Teaching**


- This article examines how use of the My Grade feature in Blackboard affects student motivation. Student monitoring of their own grade increased motivation to study and pay attention in class. Not only does this demonstration the usefulness of providing students with an online grade monitoring system, but also provides an example to students that they can relate to.


- This article examined how required versus nonrequired volunteerism is related to motivation and attitudes about volunteering. This article provides an excellent example of how motivation can be affected by the level of choice a student has.


- Psychologists have posited two types of motivation theories. Dualistic theories divide
motivation into two types: intrinsic and extrinsic. Multifaceted theories, in contrast, recognize a number of genetically distinct motives. Intrinsic-extrinsic dualism fails on at least three counts: construct validity, measurement reliability, and experimental control. Many researchers have thus moved beyond the study of intrinsic-extrinsic motivation and validated multifaceted theories. When teaching students about the multifaceted nature of motivation, teachers can take several steps to improve their students’ understanding of this understudied area of psychology.

Suggestions from the Society for Teaching's Introductory Psychology Primer


POSSIBLE ASSESSMENTS (Out of Class)

Emotion/Motivation

- Have students write a discussion paper describing how their emotions affect their drive. For example, students will likely to acknowledge that doing well in school results in positive emotions. This likely motivates them to study. Students can brainstorm other examples and describe how their emotions affect their motivation and drive.

ACTIVITIES & TECHNIQUES (In Class)

Motivation

- Have a class discussion about intrinsic and extrinsic motivation. Ask students to discuss what motivates them to do well in school and how both intrinsic and extrinsic motivation applies. This is also an appropriate time to review operant conditioning and its relationship to motivation.
Links to ToPIX Materials

Activities, demonstrations, handouts, etc.: Emotion
http://topix.teachpsych.org/w/page/19980989/Emotion%20in%20the%20Classroom

Activities, demonstrations, handouts, etc.: Motivation
http://topix.teachpsych.org/w/page/19981020/Motivation%20in%20the%20Classroom

Current events/news: Emotion
http://topix.teachpsych.org/w/page/24993705/Emotion%20in%20the%20News

Current events/news: Motivation
http://topix.teachpsych.org/w/page/24883789/Motivation%20in%20the%20News

Video/audio: Emotion
http://topix.teachpsych.org/w/page/19980988/Emotion%20Video

Video/audio: Motivation-Emotion
http://topix.teachpsych.org/w/page/39235435/Motivation-Emotion

Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf
Teaching Biological Psychology

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com//images/shared/supplement_editions/000/000/147/Motives%20and-%20Goals.ppt?1416599012.
Chapter 9: Stress & Health
The unit of psychological health includes two different aspects of health: Happiness and health psychology. Typically, these topics are given short shrift in introductory psychology textbooks despite the fact that they are popular among students, are backed by research, and represent emerging areas of psychology.

*The Healthy Life* module covers a lot of interesting content. Many of your students may have never heard of the field of health psychology and why it is relevant not only to science, but to them as well. This module will allow you the opportunity to describe the relevance of chronic stress to health, protective factors that promote health, tips on how to manage stress. You will also have the opportunity to explain what a health psychologist does and where the field is headed.

Along the way, we've offered a number of activities and special topics that you can use to engage the students in what they are learning. We hope that your students will enjoy learning about this unit and that you will enjoy teaching it!

**Learning Objectives**

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology's content domains (1.2)
  - Describe applications of psychology (1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
○ Demonstrate psychology information literacy (2.2)
○ Build and enhance interpersonal relationships (3.2)
○ Adopt values that build community at local, national, and global levels (3.3)

• Content Specific Learning Objectives: The Healthy Life
  ○ Describe basic terminology used in the field of health psychology.
  ○ Explain theoretical models of health, as well as the role of psychological stress in the development of disease.
  ○ Describe psychological factors that contribute to resilience and improved health.
  ○ Defend the relevance and importance of psychology to the field of medicine.

Abstract

Our emotions, thoughts, and behaviors play an important role in our health. Not only do they influence our day-to-day health practices, but they can also influence how our body functions. This module provides an overview of health psychology, which is a field devoted to understanding the connections between psychology and health. Discussed here are examples of topics a health psychologist might study, including stress, psychosocial factors related to health and disease, how to use psychology to improve health, and the role of psychology in medicine.

Class Design Recommendations

We recommend that you teach this module over two-class periods. Please also refer to the Noba PowerPoint slides that compliment this outline.

First class period:

• Introduce health psychology and related concepts
• Discuss the relationship between stress and health
  ○ General adaptation syndrome
• Talk about how we can protect our health
  ◦ Coping strategies
    ▪ Conduct class activity: How do you cope with stress?
  ◦ Describe link between control, self-efficacy, and health
  ◦ Talk about dispositions and emotions can both hinder and promote health
    ▪ Special topic: Emotional style and the common cold

Second class period:
• Continue discussion how we can protect our health
  ◦ Talk about the importance of social relationships and networks
    ▪ Conduct class activity: Examining our social networks

• Talk about stress management and the importance of good health practices
• Describe the relationship between psychology and medicine

Discuss what health psychologists do and where they work

Offer directions on where the field is headed

Special topic: What doesn't kill us...well does it really make us stronger?

Module Outline

What is Health Psychology?
Psychological factors can significantly influence who develops chronic diseases, how the diseases progresses, and the prognosis and nature of symptoms. Health psychology aims to understand psychology’s role in maintaining health, treating, and preventing illness. This field has become particularly relevant since many leading causes of illness in developed countries are attributable to psychological and behavioral factors. Health psychology considers how the choices we make, the behaviors we engage in, and even the emotions we feel, play an important role in our overall health. Health psychology subscribes to biopsychosocial model of health rather than the biomedical model of health. The basic premise of the former is that in order to understand disease, scientists must examine biological, psychological and social factors.

Stress and Health

Your levels of stress can influence your likelihood of contracting minor and major illnesses. For example, individuals with low levels of stress were found to be less susceptible to the cold virus when purposefully exposed to it. The term stress is derived from the field of mechanics, where materials are evaluated under pressure. Even daily stressors, events that cause high physiological arousal, can cause negative physiological responses. A model of the stress response, the General Adaptation Syndrome has allowed stress to be studied in myriad ways.

Protecting Our Health

A central question for health psychologists is what keeps us healthy. When considering resilience five factors are often studied: coping, control and self-efficacy, social relationships, dispositions and emotions, and stress management.

- **Coping Strategies.** Coping can be classified in two categories: problem-focused coping and emotion-focused coping. The former addresses the event causing the stress while the latter regulates the stress. Problem-focused coping has been more effective at improving mental wellness. However, when events are uncontrollable, emotion focused coping can be more appropriate.

- **Control and Self-Efficacy.** The belief that you have control over a situation improves health outcomes. Self-efficacy is closely tied to control, in that people who believe they can complete tasks and reach goals have higher levels of control, and thus better health outcomes.

- **Social Relationships.** Social isolation is a serious risk factor for disease and death. In fact,
research has shown that the impact of social isolation on health is comparable to regular smoking. Social integration, on the other hand refers to a lack of social isolation and the number of social roles we have. Maintaining our social roles can improve health because those in your social networks can provide different types of social support: emotional, tangible or practical assistance, or even general advice. This social support can be a buffer against health problems and might even help people live longer in some cases.

- Dispositions and Emotions: What's Risky and What's Protective? One common negative trait-to-health connection is Type A Behavior. The type A pattern refers to competitive, impatient, hostile, and time-urgent behavior, with competitiveness and hostility being the most detrimental. This pattern was related to double the risk of heart disease as compared to patients with Type B Behavior. Positive traits are health protective and can be thought of as "antidotes" to stress. Research has found an abundance of evidence tying positive emotion to multiple health benefits. Positive affect can decrease stress perceptions and improve health behaviors.

- Stress Management: Managing stress is really important to health. When people can't change the source of the stress itself (e.g., financial strain), health interventions can help reduce and manage their stress responses using tools, such as relaxation and meditation. Biofeedback is a technique, in which the individual sees bodily information that is usually unavailable to them (e.g., heart rate), and is then taught to alter their physiological response. Biofeedback interventions have proven successful in reducing cardiac risk. Importantly, the road to managing stress doesn't always lead to participating in interventions. For example, exercise has many health benefits and can also help reduce stress.

The Importance Of Good Health Practices

- Keeping good grades, maintaining a social life, and getting enough sleep can prove difficult for college students. Stressed out students taking exams tend to smoke more, drink more caffeine, and have less physical activity and bad sleeping habits, which can have deleterious health effects. Negative health behaviors can also adversely impact learning and academic performance. Psychologists study both health behaviors (i.e., behaviors that can improve or harm one's health) and health habits. Health behaviors become habits when performed routinely and/or automatically. Research shows that when people engage in positive health habits, they have fewer illnesses and live longer. Psychologists often focus on health promotion, which can help individuals change risky health behaviors as well as spread awareness of risk factors.
Psychology And Medicine

- Psychological factors can impact medical care in numerous ways. For example, older people, women, and those with high SES are more likely to seek medical care. Conversely, others may mistrust health professionals, have financial problems, or use the Internet to seek information instead of going to a doctor (even without knowing if the information they are reading is credible or not). When individuals do seek care, they often communicate poorly with doctors, which can affect diagnosis accuracy and treatment efficacy. After visiting the doctor, people should adhere to medical advice and recommendations, but adherence is easier said than done. Fortunately, technological advances can monitor and even improve adherence.

Being a Health Psychologist

- A health psychologist clinician or researcher can pursue various careers. The clinician can work with a physicians, social workers, and other health professionals in rehabilitation centers, hospitals, primary care offices, private organizations, universities, public health agencies, emergency care centers, or in chronic illness clinics. Clinical health psychologists assess illness risk factors in order to develop comprehensive treatment plans. Health psychologists can also be researchers, investigating health predictors and risk factors, and developing interventions that prevent and treat illness. People in the related field of behavioral medicine apply these research findings in jobs related to occupational therapy, rehabilitation, or preventative medicine.

The Future Of Health Psychology

- The National Institutes of Health have called for researchers to use what we know about risk factors and further study protective/resilience-promoting factors to design efficacious interventions that help manage and prevent chronic illnesses. Leading psychologists have proposed a field of “Positive Health” to identify health-promoting factors.

- Additionally, innovative tech-savvy interventions are already improving health. Examples of technological tools include apps that use email and text message medication reminders. With continual advances like these, health psychologists will develop more targeted health-improving strategies. Coupled with new discoveries in neuroscience and genetic research, health researchers and practitioners will forge a new era where we will further understand how to keep people healthy.
The healthy life module can be very engaging for students, especially if you make efforts to discuss research findings with them that they would find interesting and relevant to their own lives. We've provided a few such special topics in addition to activities that will promote deeper thinking about the relevance of stress and health. Divided into two class periods, this module will teach students what health psychology is, the implications of chronic stress and how it influences our health and disease. They will also learn what factors promote adaptation to stress, as well as some good practices to engage in. Finally, they will learn more about what it means to be a health psychologist and where the field of health psychology is headed.
First Class Period:

- Lecture – Refer to slides for the following:
  
  - To introduce the field of health psychology and its study of chronic diseases.
  - To discuss the difference between the biopsychosocial model of health and the biomedical model of health.
  - To explain the link between stress and health. Differentiate between stress, stressors, acute, and chronic stress. Talk about Hans Selye's general adaptation syndrome.

- Discussion
  
  - Why is chronic stress so significant for the health and well-being of human beings? Let the students generate some answers. Then, show the video below.

  - Video: “Why Zebras Don't Get Ulcers” (3 min.): [https://www.youtube.com/watch?v=5ePYet3Fbts](https://www.youtube.com/watch?v=5ePYet3Fbts)

- Lecture – Refer to slides for the following (stress and health):
  
  - To explain that humans are prone to chronic stress, which can have very negative implications for our health. What are some protective factors?
  - To talk about coping strategies as one way to deal with stressors. Emphasize that though problem-focused vs. emotion focused strategies are commonly mentioned, there are numerous ways to classify coping strategies.

  - Then show the two-minute “It’s Not About The Nail” YouTube video: [https://www.youtube.com/watch?v=-4EDhdAHrOg](https://www.youtube.com/watch?v=-4EDhdAHrOg). You may have shown this video in the Gender module, but it's quite relevant for this class as well.

  - Discussion: Ask students which coping strategy is being portrayed in the video. They may come up with more than one. Then, ask students to think of a recent stressor in their life. What are some ways they dealt or coped with the stressor? Are there particular strategies that were used for particular stressors? This will be a great segue into the activity below and will also give students an example of a different conceptualization of the types of coping.

- Activity: How Do You Cope With Stress?
This 20-minute activity assesses the following strategies in responses to stressors students have experienced in the past year: active cognitive (making efforts to change the way we think about the stressor), active behavioral strategies (making efforts to change the situation), and active avoidance (trying to keep the problem out of awareness). See Activities and Demonstrations for more information.

**Discussion**: Once they have completed the activity and tallied up their scores on different coping strategies, ask them if they have any thoughts on the survey. Are there any strategies that they would like to add/take away? Why? Which coping styles and specific strategies do they find most helpful and why?

- **Lecture** – Refer to slides for the following:
  - To continue the lecture on protective factors.
  - To explain the importance of control and self-efficacy. Present the significance of dispositions and emotions, specifically how they can help or hinder our health. This is a great segue into an interesting study on how our emotional tendencies can impact our chances of getting a common cold.

- **Special Topic: Emotional style and the common cold**
  - Cohen and others (2003; see Evidence-Based Teaching section) evaluated if healthy participants were more likely to experience negative emotions (e.g., anxious, depressed, etc.) or more likely to experience positive emotions (e.g., relaxed, happy, etc.). Participants were injected with a virus that causes the common cold in order to observe who was more likely to acquire the cold. Interestingly, negative emotional style was not related to the development of the cold. However, positive emotional tendencies were associated with a lower risk of developing the cold. In other words, people that had a more positive emotional style were more likely to resist the cold-inducing virus. This study provides support for the idea that positive emotional style can serve as a buffer against certain types of illness.

**Second Class Period:**

- **Lecture** – Refer to slides for the following:
  - Continue with your discussion on health protective factors. Explain the importance of social support. This is a good place for you to have the class do the second recommended
activity.

- **Activity: Examining Our Social Networks**
  
  - This 10-15 minute activity encourages students to evaluate the significance of their social relationships, take a moment to think about some of the people in their social network, and how social support might have a buffering effect on life stressors. See Activities and Demonstrations section for more detail on the activity and prompts to generate discussion.

- **Lecture – Refer to slides for the following:**
  
  - To talk about stress management.
  - To discuss good health practices.

  ▪ Consider explaining the findings of Pillai et al.'s (2014) article on the topic of coping strategies, stress and insomnia. Briefly, the authors mention that it's not so much the number of stressors in our life, rather how we cope with them (e.g., distracting oneself with TV shows) that can be detrimental to our sleep and increase our likelihood of developing insomnia. This is probably relevant to many students in your class who may use some of these ineffective strategies and may have trouble sleeping. See Evidence-Based Teaching for more on this article.

  - To talk about the relationship between psychology and medicine.
  - To describe what health psychologists do and where they can work.
  - To discuss where the field of health psychology is headed. According to the module, two noteworthy suggestions from the National Institutes of Health are:

  ▪ Continuing the use of technology in interventions (e.g., text messages)
    
    ▪ You can give students an example of one such intervention that aimed to reduce binge-drinking in college students using text message reminders and feedback (Suffoletto et al., In-Press; see Evidence-Based Teaching for more information on this study).

  ▪ Expanding health psychology research to include factors that promote resilience or adjustment to chronic stress. At this point, consider talking about the special topic below.
• Special Topic: What Doesn't Kill Us...Well, Does It Really Make Us Stronger?
  ◦ In a large sample of participants, Seery et al. (2010) examined if adversity can foster future resilience; and if so, how much or how little is the optimal amount of adversity to promote subsequent resilience? The researchers found that moderate levels of lifetime adversity led to resilience responses when people were confronted with future stressors. Conversely, the absence of adversity and extreme amounts of adversity did not predict resilience to future life stressors, and had negative implications for adjustment. For more information, see article in the Evidenced-Based Teaching section.

Activities & Demonstrations

How Do You Cope with Stress: In-Class Activity

There are numerous coping strategies that people use to deal with and manage stress. Problem-focused vs. emotion-focused coping are two broad conceptualizations of coping styles. This survey, however, evaluates students’ use of active cognitive (making efforts to change the way we think about the stressor), active behavioral (making efforts to change the situation), and avoidance (trying to keep the problem out of awareness) coping styles.

Time: 15-20 minutes

Materials: Copies of Moos and Halahan’s coping survey.

Directions:

Give students handouts of the survey.

Allow 10-15 minutes to complete and score the survey.

Then, put up a slide with scoring instructions:

Active-cognitive coping is assessed by adding up the scores on items: 1, 6, 7, 10, 11, 15, 20, 21, 23, 26, and 29. Students should divide by 11 to get their average on this coping style.
Active behavioral coping is assessed by adding up the scores on items: 2, 3, 5, 8, 12, 13, 17, 18, 22, 25, 28, 31 and 32. Students should divide the sum by 13 to get their average on this coping style.

Avoidance is assessed by adding up the scores on items: 4, 9, 14, 16, 19, 24, 27, and 30. Students should divide the sum by 8 to get their average on this coping style.

Discussion prompts:

After they finish the questionnaire, ask the students to offer their opinions on which coping style(s) and specific strategies are most helpful and why? Prompt them to think about which strategies would be helpful in which situations.

Are there any strategies that they would like to add/take away?

Research suggests that the active coping style is usually more effective than the avoidant coping style.

Survey on following pages.

This activity was adapted from: http://www.apa.org/ed/precollege/topss/lessons/sec...

How Do You Cope With Stress?

Adapted from:


Reflect on how you have approached your various challenges/stressors in the past year. Using the scale below, indicate how often you used each of the following strategies to deal with those challenges/stressors.

0 = Not at all 1 = A little 2 = Occasionally 3 = Fairly often

_____ 1. Took things a day at a time.

_____ 2. Got away from things for a while.
3. Tried to find out more about the situation.
4. Tried to reduce tension by drinking more.
5. Talked with a professional person (e.g., doctor, lawyer, clergy).
6. Made a promise to myself that things would be different next time.
7. Prepared for the worst.
8. Let my feelings out somehow.
9. Took it out on other people when I felt angry or depressed.
10. Prayed for guidance and/or strength.
11. Accepted it; nothing could be done.
12. Talked with spouse or another relative about the problem.
13. Talked with a friend about the problem.
14. Tried to reduce tension by taking more tranquilizing drugs.
15. Told myself things that helped me feel better.
16. Kept my feelings to myself.
17. Bargained or compromised to get something positive from the situation.
18. Tried to reduce tension by exercising more.
19. Tried to reduce tension by smoking more.
20. Tried to see the positive side of the situation.
21. Considered several alternatives for handling the problem.
22. Made a plan of action and followed it.
23. Went over the situation in my mind to try to understand it.

24. Tried to reduce tension by eating more.

25. Got busy with other things to keep my mind off the problem.

26. Drew on my past experiences.

27. Avoided being with people in general.

28. I knew what had to be done and tried harder to make things work.

29. Tried to step back from the situation and be more objective.

30. Refused to believe that it happened.

31. Sought help from persons or groups with similar experiences.

32. Tried not to act too hastily or follow my first hunch.

Examining Our Social Networks: In-Class Activity

Time: 5-10 minutes

Materials: No materials needed.

Directions:

Instruct the students to think of their social network. Ask them to think of various people they regularly keep in touch with. How often do they talk to or see them? What is the nature of their relationship with these people?

[Note: After each prompt throughout the activity, allow a few students to answer the questions.]

Then, ask the students to consider an adverse situation and who might they rely on for help? For instance, among the people in their social network, whom could they ask for $20? How about $100?
Increase the seriousness of the adverse event as you go on (feel free to add in other prompts). Who could the students ask to turn in their final assignments? Who would the students trust to take care of their pets while they were away? What if the students broke an arm and had to be taken to the emergency room? What if they had to be taken to the emergency room at 2:00 a.m.? How about if the students fell seriously ill and had to be taken care of for a month?

After you have finished prompting the students to answer these questions, ask them to reflect on their own responses. Was there anything they noticed? Ask if they have ever actively stopped to consider the importance of their social network. Do they think having this type of support and help could be beneficial when one is facing an adverse event? If so, how?

This is a good segue into talking to your students about the buffering effect a social network and support system can have on life stressors.

This activity was adapted from http://tinyurl.com/mvszz9c

**Outside Resources**

**App:** 30 iPhone apps to monitor your health  
http://www.hongkiat.com/blog/iphone-health-app/

**Quiz:** Hostility  
http://www.mhhe.com/socscience/hhp/fahey7e/wellness_worksheets/wellness_worksheet_090.html

**Self-assessment:** Perceived Stress Scale  

**Self-assessment:** What’s your real age (based on your health practices and risk factors)?  
http://www.realage.com

**Video:** Try out a guided meditation exercise to reduce your stress  
https://www.youtube.com/watch?v=dEzbdLn2bJc

**Web:** American Psychosomatic Society  
http://www.psychosomatic.org/home/index.cfm
Evidence-Based Teaching


Suffoletto and colleagues examined if a brief 12-week emergency room intervention involving text messages would be able to reduce self-reported binge drinking in young adults with a history of hazardous drinking. One-third of the participants received drinking-related queries and subsequent tailored feedback to their responses, both via text messages. Another third of the group received only drinking-related queries and no feedback text messages. The remaining one-third of the participants received no text messages. The results demonstrated that the group of young adults that received text message queries and feedback decreased binge-drinking days by 51% and number of drinks per day by 31%. The groups that received only drinking-related queries and no feedback text messages as well as the group that received no text messages increased in the number of the binge drinking days. The findings of this study provide support for the short-term efficacy of an SMS intervention in reducing alcohol consumption among young adults with a history of binge drinking.


In an innovative study, Pillai and colleagues delve into the link between stress, coping strategies and sleep among a large community-based sample of people with no history of insomnia. The study prospectively demonstrated that it's not necessarily the number of stressors, but our reactions to them, that put us at risk for insomnia. The study found that coping mechanisms, such as disengagement, abusing drugs and alcohol, and using media and television as a distraction strategy negatively impacted sleep, increasing the likelihood of developing an insomnia disorder.

Bonanno and colleagues explore the social and contextual factors that promote or hinder resilience. Conducted with a large sample of participants in New York City and surrounding area after the 9/11 attack, the authors found that resilient people had lower levels of depression, had more social support, were more likely to be male, Asian and older, and did not have chronic diseases. These findings have implications for the multifaceted nature of resilience and for the development of interventions to help those who have trouble recovering from traumatic experiences.


In a nationally representative large sample of participants, Seery and others examined if adversity can foster future resilience; and if so, how much or how little is the optimal amount of adversity to promote subsequent resilience? The researchers found that moderate levels of lifetime adversity led to resilience responses when people were confronted with future stressors. Conversely, the complete absence of adversity and extreme amounts of adversity did not predict resilience to future life stressors and had negative implications for adjustment.


Are people who are prone to positive emotions less likely to develop colds? Cohen and others evaluated if healthy participants were more likely to experience negative emotions (i.e., anxious, depressed, etc.) or more likely to experience positive emotions (i.e., relaxed, happy, etc.). Participants were then injected with a virus that causes the common cold in to observe who was more likely to acquire the cold. Negative emotional style was not related to the development of the cold. However, positive emotional tendencies were associated with a lower risk of developing the cold. This study provides support for the idea that positive emotional style can serve as a buffer against falling ill with the common cold.

**Suggestions from the Society for Teaching’s Introductory Psychology**
Primer


POSSIBLE ASSESSMENTS (Out of Class) Suicide Video: Students can watch a video, called A Cry for Help, available on PBS about two suicide prevention programs that have been implemented in two high schools. They can submit a reflection paper discussing the programs, the pros and cons of the programs, and what they would implement. This film can be found at www.pbs.org/wnet/cryforhelp/.

Develop of a Health Implementation: Students can use what they have learned throughout the module to develop an implementation. This is appropriate at the end of the semester, because students can apply information from various areas of psychology. One suggestion is for students to choose an health area of personal interest and make recommendation for how a program could increase or decrease behaviors in that area. For example, if a student is interested in nutrition, they could develop a potential intervention (using that could increase this behavior).

ACTIVITIES & TECHNIQUES (In Class) Assessing Current Prevention Programs – Students can take part in a classroom discussion about a current prevention program. The following paper is a program evaluation of the D.A.R.E. Program. This is a good program to review, because most students have participated in D.A.R.E. or at least familiar with the program.


RELEVANT TOP ARTICLES (Annotated Bibliography)


This article discusses a life stress instrument that is appropriate for undergraduate college students. Students can take this instrument and discuss their results in class. This can propel a discussion about the negative effects of stress on physical and mental health.

This article describes a project for a health seminar. Students are asked to profile 15 family members and identify patterns related to health and illness in their families. This is a good example to discuss with students, because this project would be difficult to assign as part of an introductory course. However, the project could be abbreviated for a homework assignment.


This article discusses an upper level undergraduate course in health psychology. While these examples are an upper level course, there are good assignment and lecture examples that could be incorporated into a health section of an introductory course.

Links to ToPIX Materials

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19981000/Health%20in%20the%20Classroom

Current events/news:
http://topix.teachpsych.org/w/page/49255327/Health%20in%20the%20News

Video/audio:
http://topix.teachpsych.org/w/page/19980999/Health%20Videos

Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

**PowerPoint Presentation**

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com/images/shared/supplementEditions/000/000/136/The%20HealthyLife.ppt?1416603171.
Chapter 10: Cognition: Thinking, Language, and Intelligence
Intelligence is a hard-to-define concept because there is more than one way to look at intelligence or what makes people smart. Is it high IQ and logical reasoning? Or do so called “street smarts” make a better definition of intelligence? These questions are covered in the module along with how we measure intelligence. There are many tests that measure various aspects of intelligence, and along with understanding how you define intelligence, it is important to understand what you are measuring.

Learning Objectives

• Relevant APA Learning Objectives (Version 2.0)
  ◦ Describe key concepts, principles, and overarching themes in psychology (1.1)
  ◦ Describe applications of psychology (1.3)
  ◦ Use scientific reasoning to interpret psychological phenomena (2.1)
  ◦ Demonstrate psychology information literacy (2.2)
  ◦ Engage in innovative and integrative thinking and problem solving (2.3)
  ◦ Incorporate sociocultural factors in scientific inquiry (2.5)

• Content Specific Learning Objectives: Intelligence
List at least two common strategies for measuring intelligence.
Name at least one “type” of intelligence.
Define intelligence in simple terms.
Explain the controversy relating to differences in intelligence between groups.

Abstract

Intelligence is among the oldest and longest studied topics in all of psychology. The development of assessments to measure this concept is at the core of the development of psychological science itself. This module introduces key historical figures, major theories of intelligence, and common assessment strategies related to intelligence. This module will also discuss controversies related to the study of group differences in intelligence.

Class Design Recommendations

Intelligence is ideally taught in one class period as a fast-paced, activity-based class. Please also refer to the Noba PowerPoint slides that compliment this outline.

1st class period (50 min – 75 min):

• Introduction
• Defining and Measuring Intelligence
• Types of Intelligence
• Correlates of Intelligence
• Conclusion
• The Scripps National Spelling Bee is a yearly event with children competing to spell what are largely unknown words. Watching the bee you think these must be really smart kids. But what is smart?

• This module sets to cover different aspects of intelligence and to define and discuss methods to measure intelligence.

Defining and Measuring Intelligence

• When you talk about “smart people” there is an intuitive sense of what makes them smart and that it is more than knowing and remembering facts.

• A dog who learns commands seems smarter than a snake who cannot.

• There is general agreement that primates (including humans) are among the most intelligent animals.

• The social nature of primates is one source of intelligence. The social groups utilize communication and long term planning and primates have developed brains that allow these and other concepts.

• When talking about intelligence we typically mean intellectual ability. Charles Spearman proposed a “general factor” or “g” to note intelligence. This is after Spearman noted that people who perform well in one area tend to perform well in another.

• Francis Galton was among the first to measure psychological attributes systematically. He thought that intelligence was heritable and tracked family trees of top-scoring Cambridge students for 40 years. He was also among the first to study heritability using twins.

• Alfred Binet and his colleague Theodore Simon created a test for children's intellectual capacity. The first “IQ” test. The test items were meant to be answerable by children of given ages.

• The “IQ” score of the Binet-Simon test is the mental age/chronological age.

• Lewis Terman adapted the IQ test to create the Stanford-Binet test which is standardized on a bell curve. The Stanford-Binet test relies heavily on verbal ability.

• David Wechsler created the WAIS, which taps a range of intellectual abilities: the ability to remember, compute, understand language, reason well, and process information quickly.

• One interested effect of intelligence testing over time is the Flynn Effect. As new cohorts take IQ tests, they tend to score higher than the original sample from which the test was normed. There are several hypotheses to explain this, such as better nutrition, greater familiarity with testing, and more exposure to visual stimuli.
Types of Intelligence

• Weschler’s approach to intelligence testing was based on the idea that there is not a single element that can be measured to note intelligence.

• There is a suggestion that there are different types of intelligence, such as “Street smarts” or “book smarts.”

• Carroll divided intelligence into three levels going from the most abstract Level III (e.g., car) to the most specific Level I (e.g., Honda Civic); Level II would be in the middle (e.g., sedan).

• Carroll called Level III the general intelligence factor “g.” Level II is things like fluid intelligence processing speed and Level I is the most specific breakdown with things like reaction time.

• Horn and Cattell gave the idea of fluid (thinking on your feet) and crystallized (what you know) intelligence. Fluid intelligence is stronger when you are young and crystallized intelligence can increase with age.

• Howard Gardner theorized multiple intelligence, with 8 intelligences identified (logic-math, visual-spatial, music-rhythm, verbal-linguistic, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic).

• Emotional Intelligence is the idea that emphasizes understating and identifying the emotions of others and oneself. There is a link with emotional intelligence and job performance.

• Carol Dweck studies mindset and has found that the children who do better on intelligence tests are the ones who believe they can improve, while those who underperform believe intelligence is set.

Correlates of Intelligence

• Research on mindset raises the question as to if humans have unlimited potential for intelligence. What is the genetic component?

• Are there differences in intelligence between groups of people? Gender differences are among the most studied. Is the inequality of fewer women represented in some fields due to the educational system, differences in socialization, or innate differences from men?

• Ceci and colleagues argue that it is a complex web of factors that account for many of the differences seen between women and men.

• Instead of asking which group is smarter, a better question is to ask in what ways men and women differ. Women appear superior on measures of fine motor skill, acquired
knowledge, and verbal/literacy tasks. Men appear superior in measures of fluid reasoning and math and science takes, and spatial tasks.

- Stereotype threat is the idea that men or women perform in line with stereotypes that they have heard about how they “should” perform. For example women who are told women tend to do worse on math tests will do worse on a math test than women who do not hear this.
- There are many biases that benefit or disadvantage some groups over others. However the intelligence tests are valid and do measure what they claim to measure.

**Conclusion**

- The kids in the Scripps Spelling Bee seem to have high verbal intelligence, but other types of intelligence would remain to be measured.

**Difficult Terms**

interpersonal
intrapersonal
stereotype threat
validity

**Lecture Frameworks**

This is a topic where students must use critical thinking to examine what they thought they knew about intelligence. The module allows students to redefine what makes someone smart and to think about if intelligence is something we can truly measure.

**1st class period**

- Discussion/warm-up
  - Start by asking students what they think intelligence is. What makes humans intelligent, or How is human intelligence different from the intelligence of other animals?
Activity: Look at 30 items and write down 20 from memory. The debriefing of this activity helps students think about intelligence testing.

- Lecture – Refer to PowerPoint slides for the following:

  - Talk about general intelligence, “g”, and some of the first tests to measure intelligence.
  - Talk about culture and how logic tests have been developed that do not rely on culture, but that in some cultures, like ours, children and adults are more used to testing than cultures where people may not attend school for as long or at all.
    - Talk about different tests we have and how they are scored, standardized, and normed.
      - Talk about the Flynn Effect
  - Get students to think about other definitions or types of intelligence. Talk about Street Smarts and Book Smarts (Sternberg) and the idea of Multiple Intelligences.
    - Carroll divided intelligence into three levels going from the most abstract Level III (e.g., car) to the most specific Level I (e.g., Honda Civic); Level II would be in the middle (e.g., sedan).
    - Horn and Cattell give us the idea of Fluid and Crystallized intelligence. There is a short activity that challenges students to identify examples of fluid and crystalized intelligence.
    - Gardner came up with the idea of multiple intelligences.
    - Emotional Intelligence is the ability to understand the emotions of others. There are a couple of theories as to what Emotion Intelligence is – its own domain or a combination of stress management and personality. Give Emotional Intelligence test.
    - Talk about Dweck and mindset. Does this mean intelligence is set or we have some control over it?

Activity: If you choose to do a different activity, here is a good place for it to go before finishing the lecture.

- Lecture on correlates of intelligence – Refer to PowerPoint slides for the following:

  - Gender differences: talk about areas where men and women tend to show differences;
emphasize that these are tendencies among the population and not necessarily true about individuals.

- Stereotype threat

• Conclusions: Ask students the same questions from the start of class. What is intelligence? Can we measure it? Have their answers changed?

Activities & Demonstrations

Intelligence Tests

A test of “g” is what most students will likely think of when they hear Intelligence Test. If you have access to the first page of a test like Culture Fair (Cattell & Cattell 1963) it is fun to give students the first set of questions. (If your institution has a subject pool of students it’s a good
idea to check with your department that no one is using it for a current experiment). The images below are examples of what students would see on a test of \( g \). You can show these and talk about what they are measuring and what that tells us about intelligence. Use a show of hands to see who does well at figuring out these kinds of questions and who finds it frustrating.

Raven's Matrix Images found here (http://de.wikipedia.org/wiki/Culture_Fair_Intellig...)

http://de.wikipedia.org/wiki/Culture_Fair_Intellig...
http://de.wikipedia.org/wiki/Culture_Fair_Intellig...

- For the test of Multiple Intelligences, (http://www.literacynet.org/mi/assessment/findyours..., it can be helpful to ask for a student volunteer to fill out the test before class or during a break as there are a lot of questions. Then when you get to this point, the results are there and you can talk about how the test works, the kinds of questions, and the graph output.

- The Emotional Intelligence test is paper and pencil with slides. Click here for the slides. For each picture read the two emotion options, then students write down their answer. At the end, go back for any that were missed. Then have students self-grade and discuss as a class. Click here to download the Facetest: http://www.autismresearchcentre.com/arc_tests

- The test was developed by Simon Baron-Cohen and colleagues at the Autism Research Centre and is free to download. Click here to get key.

- For all of these tests, go through them quickly as time is often a factor in taking intelligence tests. For example the Culture Fair test is a timed test.

**Additional Activities**

Test your Emotional Intelligence – images of eyes only: http://kgajos.eecs.harvard.edu/mite/

Additional Emotional Intelligence tests from the Autism Research Centre:
http://www.autismresearchcentre.com/arc_tests

http://www.pbs.org/wgbh/nova/body/memory-intellige...

With the latest imaging techniques, we peer inside David Pogue’s mind, witness the firing of his brain cells, and look at how scientists are beginning to map the complex neural networks that are the key to intelligence, memory, and problem solving.

**Evidence-Based Teaching**

Hunt, E. (2013). Teaching intelligence: Why, why it is hard and perhaps how to do it. *Intelligence, 42156-165. doi:10.1016/j.intell.2013.06.018*
• This paper details some of the reasons that it is important to teach intelligence and also why in many schools it is no longer its own course of study. There are some tricky areas to cover such as the associations of intelligence with elitism and racism, but also ideas for how to discuss these issues. The primary idea is to start with teaching an understanding for what intelligence is and the biological and environmental causes of intelligence.

Suggestions from the Society for Teaching's Introductory Psychology Primer


POSSIBLE ASSESSMENTS (In or Out of Class)

Have students create their own (brief) intelligence test by generating questions. Can occur before or after discussions of culture fair tests. (LO 1.2b, 5.5)

ACTIVITIES & TECHNIQUES (In Class)

The Hamburger Test of Intelligence – Have students describe their favorite toppings on a hamburger. Have them immediately repeat the task. Then provide a bogus list of acceptable “intelligent” toppings. The exercise is a fun way to distinguish between the reliability (very reliable) and validity (terribly invalid) of a test. (LO 4.3) (IC)

Administer the intelligence test given to American soldiers in WWI (available at http://historymatters.gmu.edu/d/5293). This activity highlights the cultural dependency of many intelligence tests for factual knowledge, and can lead to a discussion of crystallized versus fluid intelligence. It tends to be fun for students. (LO 5.5) (IC)

Introduce the book “The Bell Curve” by Richard Herrnstein and Charles Murray (1994). (Students could also read an excerpt before class and come prepared to discuss.) Have students discuss one of the more controversial claims of the book that intelligence is largely inherited and not influenced much by ethnicity or socio-economic status. Have students describe the possible
implications of that statement. This activity highlights a difficult core concept for many students. (LO 5.5) (IC/OC)

RELEVANT TOP ARTICLES (Annotated Bibliography)

This article presents a demonstration of the definition of intelligence by presenting visual word puzzles as a quick test of intelligence. It involves repeated presentation of items varying in difficulty as prompts for discussion of the topics of reliability and situational factors in testing. All materials necessary for the test are in the text. Griggs, R. A. (2000). A one minute “intelligence” test. *Teaching of Psychology, 27*, 132-135.

THINKING: COVERAGE SUGGESTIONS 1 class period (50 min – 75 min): Define cognition (LO 1.2a) _Introduce concepts (prototypes, exemplars) and classification (hierarchies) (LO 1.3c) _Problem solving, including heuristics (LO 3.1e) _Decision making, including common biases (representativeness, availability, overconfidence) (LO 3.1e, 5.2) Through the use of three “intelligence tests,” this article provides demonstrations of multicultural awareness. Specifically, the demonstrations highlight language and cultural biases that can exist in intelligence tests. Warren, C. S. (2006). Incorporating multiculturalism into undergraduate psychology courses: Three simple active learning activities. *Teaching of Psychology, 33*, 105-109.

LEARNING OBJECTIVES _1.2a_: Demonstrate knowledge and understanding representing appropriate breadth and depth in selected content areas of psychology (1) learning and cognition _1.3c_: Interpret behavior and mental processes at an appropriate level of complexity _3.1e_: Recognize and defend against common fallacies in thinking _5.2_: Demonstrate reasonable skepticism and intellectual curiosity by asking questions about causes of behavior (as suggested by APA guidelines, 2007)

Links to ToPIX Materials

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19980978/Cognition%20in%20the%20Classroom

Thinking-Language Intelligence In the News:
http://topix.teachpsych.org/w/page/26682121/Cognition%20in%20the%20News

Video, Books and Film:
Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com/images/shared/supplementEditions/000/000/125/Intelligence.ppt?1416598900.
Humans are often not as rational when it comes to decision-making as we'd like to think. We are full of bias and often rely on what we think we know. Because judgment and rational decision-making involve complex processes that use more resources than our brains can process, we often make emotional decisions. Psychologists know that judgment isn't rational. Three important biases are overconfidence, anchoring, and framing. We use the easiest information to access and do not always pay attention to more complicated aspects of the decision-making process. Because our biases are predictable, researchers are coming up with ways to overcome these biases to help people make better decisions, by pushing the use of System 2 processing to make logical and unemotional decisions and by changing the environment and framing of the question to push people to better decisions.

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Describe applications of psychology (1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
  - Demonstrate psychology information literacy (2.2)
  - Engage in innovative and integrative thinking and problem solving (2.3)
  - Incorporate sociocultural factors in scientific inquiry (2.5)
Content Specific Learning Objectives: Judgment and Decision Making

- Understand the systematic biases that affect our judgment and decision making.
- Develop strategies for making better decisions.
- Experience some of the biases through sample decisions.

Abstract

Humans are not perfect decision makers. Not only are we not perfect, but we depart from perfection or rationality in systematic and predictable ways. The understanding of these systematic and predictable departures is core to the field of judgment and decision making. By understanding these limitations, we can also identify strategies for making better and more effective decisions.

Class Design Recommendations

Judgment and decision making is ideally taught in one class period. This topic is one that some instructors omit, but it provides some explicit real-world uses of psychology. Please also refer to the Noba PowerPoint slides that compliment this outline.

1st class period (50 min – 75 min):

- Introduction
- What Does a Rational Decision look like, six steps
- Bias
  - Overconfidence / Activity
  - Anchoring
  - Framing
- Activity
- Bounded
According to Herbert Simon's bounded rationality framework, we try to make rational decisions, but cognitive limitations prevent us from being fully rational. We retain a relatively small amount of information in our usable memory and are left with making the best decision with the information we have.

Tversky and Kahneman's research provides critical information about systematic biases in our judgment.

What Would a Rational Decision Look Like?

When faced with making a difficult decision there are six steps you should take:

- Define the problem
- Identify the criteria necessary to judge the multiple options
- Weight the criteria
- Generate alternatives
- Rate each alternative on each criterion
- Compute the optimal decision

Unfortunately, when faced with a large decision we rely heavily on our intuition, or the way we think through these six questions is biased by our intuition.
Biases in Our Decision Process

- Bounded rationality taught us that judgment is not rational, but it didn’t tell us how our decision making is biased. Heuristics allow us to cope with the complexities of decision-making and also lead to predictable bias.

- Overconfidence is our tendency to be overly confident in our judgments, thinking we are right, when in fact we may be wrong. When asked to give a range answer to 10 questions, most people will be overly confident they know the answer and make their range too small, answering 3-7 questions correctly.

- Anchoring is when we allow the first information provided to affect our thinking. In the problem about corrupt businessmen most people say 10 is low and 200 is high. But when asked what number they think, the people who heard 10 in the question tend to give numbers half as small as those who hear 200. They have anchored onto that first number and shift their guess from that.

- Framing is how the question is asked. In the examples given, the same question is asked about 600 sick people. However, the first question is framed around saving lives and the second question around losing lives. Answers differ based on the outcome even though the choices are objectively the same in both scenarios.

- These are only three types of bias that affect our judgment; there are many other assumptions we make that bias our decision making.

Contemporary Developments

- In 2000, Thaler suggested that decision making is bounded in two ways not captured by bounded rationality.

- First our willpower is bounded and we give more weight to present concerns than future concerns. And our immediate concerns are not always consistent with our long-term goals.

- Our self-interest is bounded in that we care what happens to others. Sometimes we may give a positive outcome out of a desire to be fair, other times we give a negative outcome to ourselves in order to harm others.

- Bounded ethicality refers to the notion that our ethics are limited in ways we’re not aware of ourselves.

- Bounded awareness refers to the array of focusing failures affecting our judgment, specifically failing to notice important information.
Fixing Our Decisions

• We all have biases; one path to fixing them is the distinction between System 1 and System 2 decision-making. System 1 processing is our intuition. It is fast and emotional. System 2 processing is slow and logical. The six steps for rational decision-making are a System 2 process.

• System 2 is not required for every decision we make. System 1 is more than sufficient for decisions like what to wear or what to eat. But we should rely on System 2 more than we do, because often people use System 1 for big decisions that would be better made in a logical manner.

• One example of overriding System 1 and making System 2 decisions is Billy Beane of the Oakland Athletics. His story is featured in the movie Moneyball.

• The book “Nudge: Improving Decisions about Health Wealth, and Happiness” outlines a strategy for how we can change environments, taking into account human biases.

• Opt-in vs. Opt-out is one environment change. Many companies have an opt-in policy for retirement plans, when this is changed to an opt-out policy enrollment increases. Many people want to be part of the plan they just don't get around to doing so, and those who feel strongly against opt out. A similar trend is seen in the differing policies for organ donations around the world. Countries with opt-out policies have much higher donation rates than countries, such as the US that have opt-in policies.

• Our bias is predictable, meaning research can open new ways of helping people make better decisions.

Difficult Terms

Bounded awareness
Bounded ethicality
Bounded rationality
Self-awareness bounded
System 1
System 2
Willpower bounded
Lecture Frameworks

“Judgment and Decision Making” is a module that really gets students thinking about what they know and what they think they know.

1st class period

- Discussion/warm-up
  - Start by asking students about the criteria they use to make decisions? pro/con lists, what you want, location, cost, pay, impact on others, etc... Ask if students think they make rational decisions most of the time.

- Lecture – Bias in Thinking: Refer to PowerPoint slides for the following:
  - Talk about the theory of Simon and Tversky and Kahneman. Talk about the six points of rational decision making and why we don't often follow these.
  - Activity Slides: Ask students the 10 questions from problem 1 in the Noba module. The questions are also contained in appendix slides. Students should write their answer and put a lower and upper range so that they are 98% sure their answer is in the range. Even if students have answered these questions while reading, it is unlikely they will have remembered all of the answers, although ranges may be smaller. And if they do, then they have already learned the point of the activity through reading on their own. After showing the answers, ask how many students got 9-10 correct, meaning the correct answer was in their RANGE. Then ask how many of these students remembered the answers from the reading. Then ask how many students got 3-7 correct.
  - Discuss overconfidence.
  - Remind students of Problem 2. Discuss anchoring.
  - Remind students of Problem 3. Discuss framing.

- Activity – The Monty Hall Dilemma See Activities/Demonstrations for instructions

- Lecture: Contemporary Developments: Refer to PowerPoint slides for the following:
  - Discuss four ways decision making is bounded: willpowers, self-interest, ethicality, awareness
  - Make a Deal: Ask for two volunteers. Have 10 pieces of candy. The rules are person A gets the candy and decides how much to share with person B. Person B then decides if
he will take the deal. If he does, both walk away with the candy allotted. If person B
doesn't like the deal no one gets candy. If you do this a few times you might see different
allotments and answers. If you do this only one time then, ask person B why they chose the
way they did. Then ask person A why they chose the way they did. Ask about alternatives.
Why would B say no; isn't some candy better than no candy?

- In what ways were you bounded by your decision-making? Did you go through the six
  steps of rational decision-making? Why not? What if it was hundred dollar bills instead
  of candy?

• Fixing Decisions: Refer to PowerPoint slides for the following:

  - Talk about System 1 vs. System 2. Ask students for examples of decisions they have to
    make and which system would be best used for making each one.
  - Talk about changing the environment to help people make better decisions. Talk about
    ethical concerns that may come up here, such as who is deciding what the “best” default
decision is.

Activities & Demonstrations

The Monty Hall Dilemma: In-Class Activity

193-195.

In this demonstrations based off the TV game show Let's Make a Deal, hosted by Monty Hall
(hence the name) students have to learn to trust the probability math rather than their own
intuition to win the game. Even after the winning strategy (to switch) is explained to them,
many students will continue to trust their intuition.

The basic premise of the activity is there are three “doors” (you can use images or cups) where
one has a prize, the other two contain nothing or a nominal object. When first asked to pick
a door there is a 33% chance of picking correctly. Then one of the other doors shows the
nothing prize and the player is asked to stay or switch. Most of us will say that now there is a
50% chance of being right, so it doesn't matter. This activity proves us wrong in that assumption.

Materials

- 3 large (not clear) cups
- 1 prize object (a piece of candy) and optionally 2 nothing objects (two small rocks).

On the board or on students’ paper, have them make a tally sheet, something like this:

<table>
<thead>
<tr>
<th></th>
<th>Stay</th>
<th></th>
<th>Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Win</td>
<td></td>
<td>Win</td>
<td></td>
</tr>
<tr>
<td>Lose</td>
<td></td>
<td>Lose</td>
<td></td>
</tr>
</tbody>
</table>

Instructions

- Ask for a student volunteer who will be the final choice maker. This student has to choose the first cup (1, 2, or 3). Then show one of the remaining rock cups. Now ask the student if he wants to stay or switch his choice.
- Tally the result then ask the student why they made that decision. You will most likely get an answer that the choice is now 50/50 so it's doesn't matter.
- Ask another student to come up and do the same thing.
- Tally and note if the student made the same choice to stay or switch and ask why.
- After a second trial explain the math to the students. It's actually better to switch because after the student chose there was a 1/3 chance the prize is with the student and a 2/3 chance the prize is not with the student. Knowing that one of the cups has a rock does not change the 2/3 probabilities that the other cup has the prize (because there is a 2/3 chance the student chose wrong initially).
- Students will probably argue with you, so do more trials. If you do and graph 20, you will see that switching provides more wins than staying.
- Some discussion topics for WHY students choose wrong are heuristics (trial and error), anchoring, and base rate neglect. Hopefully after this activity, students will also understand that, while it seems not to matter what choice is made, thinking through logically and
mathematically will lead to a better choice.

**Make a Deal to Share**

This activity is good to show how our decisions can be bounded by self-interest. Does Person A choose to share fairly or unfairly? Does Person B act in self-interest and take what is offered (better than nothing) or reject the deal (rather both get nothing to hurt you)?

**Materials**
Life savers or other small candy

**Instructions**

- Ask for two volunteers. Give 10 pieces of candy to Person A. Person A decides how much to share with Person B. A splits with B. At this point give no other information.
- Then tell Person B she gets to decide if she will accept the deal. If she does, both walk away with the candy allotted. But B also has the option to reject the deal, both walking away with nothing.
- Person B makes a decision. *Then ask person B why she chose the way she did. Then ask person A why he chose the way he did.*
- What about self-interest? Personal gain vs. causing harm.
- Do the activity a second time. Does A choose differently knowing the rules? Does B?
- If you do more trials (with new participants each time) Keep track of the divisions and decisions.
- At the end, discuss the different options that were presented and how people decided. Were the decisions rational?

- This activity is loosely based on the Prisoner’s Dilemma
- http://en.wikipedia.org/wiki/Prisoner's_dilemma

**Alternate Monty Hall Dilemma**

David DiBattista developed a digital learning module of the Monty Hall dilemma, found here: http://www.brocku.ca/psychology/people/dibattista.htm. This online module has a learning component and a game component where students can play the classic 3-door version or a more complex 20-door version of the game. Both versions give an explanation as to the probability and allow students to play for as many trials as they want in order to understand why their intuition may lead them to the wrong answer and why understanding of probability may be false. This would make a great homework or extra credit assignment.

Additional Activities


- This gives 10 short activities for decision-making and problem solving. Some of these are primarily to introduce content and others to follow-up and reinforce. One activity below:

  - **Decision-Making Heuristics**: Within their teams, students described a major life decision (e.g., college choice), then speculated how specific decision-making heuristics (e.g., representativeness), a concept that they had just studied, may have affected their decisions.

Alternative: Prisoner’s Dilemma for Second Graders http://boards.straightdope.com/sdmb-showthread.php...

- A way to play the prisoners dilemma with red and yellow (plastic) chips. This is written to work in a class of second graders, but works well for college age too. If students are able to pair up and do several trials to see what different scenarios get them, they can come up with what the most rational decision is (to get the most points) but also understand that decisions are often emotional.

Supplementary Material

Video: The Monty Hall Dilemma was featured in an episode of the TV show Numb3rs.
Episode 113 “Manhunt” This is a clip of the segment from YouTube.

http://www.youtube.com/watch?v=bbCM8w18h-Q

**Outside Resources**


**Evidence-Based Teaching**


- This study compares two leadership training programs to evaluate their effectiveness for leadership and decision making skills. The technical learning program was associated with information acquisition. The game based training was associated with better decision-making.

**Suggestions from the Society for Teaching's Introductory Psychology Primer**

POSSIBLE ASSESSMENTS (In or Out of Class) Ask students to identify times when they have made one of the following mistakes: representativeness bias, availability bias, overconfidence bias (or any others you cover). Have them write a brief essay explaining the mistake and how it is an example of the concept. (LO 1.2a, 3.1e) Ask students to draw a conceptual map of the
material in the module. Have them develop a hierarchical organization to the material representing their understanding of the concepts involved. (LO 1.3c)

**ACTIVITIES & TECHNIQUES**

Overconfidence Activity: Select some word puzzles (e.g., http://thinks.com/brainteasers/index.htm). Pick ones that are easy to present (e.g., only visual display). Show several and quickly give students the answers. Ask them how long it would take them to solve one. Then present a novel problem (without the solution) and time how long it takes students to complete it. Students usually will believe the novel problem will be easy to solve and they will be able to do it quickly, demonstrating overconfidence. It is a fun way to demonstrate the concepts. (LO 3.1e) Thinker (available at http://cat.xula.edu/thinker/decisions/heuristics/ranking) has a variety of web-based demonstrations of common decision making errors, including the representativeness heuristic, the availability heuristic, framing effects, and the gambler's fallacy. Great for critical thinking development. Select interactive demonstrations that expand upon static concepts from the book. (LO 3.1e) Functional Fixedness Activity (taken from Myers, 2007): Ask students to arrange six matchsticks so that they form three equilateral triangles. You may do it as a thought exercise, or actually provide your students with some sticks. Most students will be fixated on two-dimensional solutions. The only way to answer the problem is to create a three-dimensional pyramid. Also a fun way to demonstrate the concept. (LO 3.1e, 5.2) 46

**Links to ToPIX Materials**

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19980978/Cognition%20in%20the%20Classroom

Thinking-Language Intelligence In the News:
http://topix.teachpsych.org/w/page/26682121/Cognition%20in%20the%20News

Video, Books, and Film:
http://topix.teachpsych.org/w/page/39237027/

Video:
http://topix.teachpsych.org/w/page/19980979/Cognition%20
Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

Understanding the role of language is important because it is ubiquitous in our lives. Most of us couldn't imagine a world without language. We use it to communicate, and even those without a formal language will create their own. Humans are social beings and each time we enter into a conversation we not only use language, but adjust the terms and contexts used based on what we know of the others involved and of the clues and responses given throughout the give and take of a conversation. Conversation is cooperative and each group will have a unique set of rules they follow. While humans have the ability to communicate philosophical thoughts, the majority of conversations revolve around gossip or our social world. Our brain size is an important part of what makes us able to communicate and use language in the ways we do. Language also affects neural processing as well as memory and emotional responses.

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Describe applications of psychology (1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
  - Demonstrate psychology information literacy (2.2)
  - Engage in innovative and integrative thinking and problem solving (2.3)
  - Incorporate sociocultural factors in scientific inquiry (2.5)
• Content Specific Learning Objectives: Language and Language Use
  ○ Define basic terms used to describe language use.
  ○ Describe the process by which people can share new information by using language.
  ○ Characterize the typical content of conversation and its social implications.
  ○ Characterize psychological consequences of language use and give an example.

Abstract

Humans have the capacity to use complex language far more than any other species on Earth. We cooperate with each other to use language for communication; language is often used to communicate about and even construct and maintain our social world. Language use and human sociality are inseparable parts of Homo sapiens as a biological species.

Class Design Recommendations

Language and Language Use can be taught in one long class period. If you have a course set up with a long and a short class period it is optimal to lecture during the long period and use the shorter time for a class activity. Please also see the Noba PowerPoint slides that complement this outline.

1st class period (50 min – 75 min):
• Introduction
• How do we use language
• What do we talk about
• Psychological consequences of language use
• Conclusion
• if no second class period, activity here.

Optional 2nd class period (50 min – 75 min):
Language Development Activity


Module Outline

Introduction

- Language is central to our everyday lives. We all use it and infants learn it without being explicitly taught.
- Even when children don’t have much language, when brought together they will create one. In the 1980s deaf children in Nicaragua were brought together for school. They did not learn the Spanish the teachers were teaching, but created their own sign language to communicate.

How do we use language?

- While language has many uses, the primary use is to communicate with others.
- In order to carry on a conversation, common ground is necessary. The speaker assumes that the listener knows what the words mean. The listener responds with an utterance that he understood and adds more information.
- A speaker takes into account common ground with unique listeners. Adam said “Gary” because he knew Ben knew who Gary was. If Adam were speaking to you, he might have said “my friend” as you do not know Gary. Audience design allows us to use brief labels for people or things when the audience is knowledgeable and descriptive labels if the audience is less knowledgeable.
- Conversation is a cooperative activity that most often occurs in small groups. The rapid exchange of utterances in a noisy environment requires a great deal of coordination.
- When we enter a conversation we align ourselves to the other(s) we are speaking to. People tend to match phrases (choosing the phrase used first to continue the conversation when there are multiple that could be used), and syntactic structure. People also tend to match
speech rate and accent.
• Priming occurs when thinking about one concept reminds you of other related concepts.

What do we talk about?

• When we talk, we can communicate about the mundane to the philosophical. However, 60-70% of natural conversation revolves around gossip.
• While gossip may seem a trivial use for an ability that makes humans unique from other animals, some argue that it is one of the most important uses for understanding our social world and is the human equivalent to primates grooming one another.
• Talking about our social world (gossip) helps us to make sense of and regulate our social circles.
• Dunbar’s social brain hypothesis predicts group size based on brain size and estimated that humans can support groups of up to about 150 – the size of modern hunter-gatherer communities.
• Dunbar’s hypothesis about gossip and its role in human evolution is controversial, but either way language is an important tool for maintaining our intergroup structures. Subtle language cues, such as choosing a verb (a state of particularity) or an adjective (a state of permanency) to describe someone gives information about how we construe our social world.
• Linguistic intergroup bias is the phenomenon where we tend to talk about positive attributes of the ingroup and negative attributes of the outgroup with adjectives instead of verbs. So ingroup members are viewed as generally and permanently good and outgroup members generally and permanently bad, where the negative attributes of the ingroup and positive attributes of the outgroup would be talked about using verbs – because they are viewed as a one-time occurrence.
• When stories are told and retold they tend to become conventionalized as they reach a broader group of people. Counter-stereotypical details are dropped and stereotypical detail is more likely to be kept. The story will have meaning for a broad audience.

Psychological Consequences of Language Use

• When people talk about an experience, their thoughts are shaped by the linguistic expression more than the experience itself.
• When presented with an image and asked to label the emotion, people remember the
depiction of emotion as being stronger if they explained why the person felt that way rather than simply identifying the emotion.

• Neural processing is affected by linguistically labeling emotions.

Conclusion

• Language is central to human psychology.

Difficult Terms

ingroup
intergroup bias
lexicon
outgroup
phoneme
syntax/syntactic
utterance

Lecture Frameworks

Language is such an important part of what makes us who we are. We use it to communicate and it is something most of us learn without explicit instruction. Language is one of the things that makes humans different from other animals. It affects our social interactions, but also our brain functions. Language plays a part in shaping memory and emotional experience. Language is so ingrained in our day-to-day functioning that most of us probably have never thought about what life would be like without language.

1st class period

• Discussion/warm-up

  ○ Start by asking students questions that provoke their own broad thinking about language use and language acquisition. For example, you might have them meet in small groups to consider how the world would be different if humans did not have spoken language.
Lecture – Refer to PowerPoint slides for the following:

- Talk about what language is and why it’s important. While most animals have some sort of communication system, none is as complex as that of humans. Humans can think and reason and generate language to convey thought.

- Talk about how we use language in conversation: common ground, audience design, priming. Here there is an embedded 2 minute video showing toddler twins communicating with each other.

- Priming activity: this is a quick activity that can be done mid-lecture. Show a slide with the following:
  - Tab__ Cha__ Des_ Sof_ Ask the student to fill in the missing letters.
  - Show group 1 possible answers: Table, Chair, Desk, Sofa. Ask how many students got these answers.
  - Then show group 2 possible answers: Taboo, Chant, Destiny, Soft. Ask how many students chose these words.
  - Ask why more students chose the first four words than the second. Because of priming. We are primed to fill in the missing words, which is why most people can read a paragraph with the middle letters blacked out. Priming is also in effect where we guess with words that go together. Group 1 is all furniture. Group 2 are four words that could be correct but have no relationship. Priming makes group 1 more probable.

- Use of language: Here you can introduce two key vocabulary terms—lexicon and syntax

- What do we talk about? Discuss the social nature of language in regard to gossip and ingroups and outgroups.
  - See PowerPoint for the following: Psychology of language use.

Activity: Language Development (*could also be used for an entire short second class period*)

- Now that we’ve discussed how language is used and why it’s important. Let’s figure out if we can develop our own language.

- Students develop their own language regarding shape color and placement, to the effect that they can instruct a group member to build a shape.

- See the PowerPoint slides for this activity find this activity
• Conclusion: Wrap up with any remaining questions.

Activities & Demonstrations

Language Development Activity – Develop your own language

http://www.devpsy.org/teaching/language/language_g...

• The web link really lays this out step-by-step, but we want to give you an overview here. The text in this module talks about why language is important and how we use it. The purpose of this activity is to think about how language develops and how communication can take place with the most basic language as long as there is commonality among the participants in the conversation.

• Start with having a volunteer come up with a note pad and pen (or provide one). Have him face the class then put up the final PowerPoint slide. You, or a second student volunteer should describe the image. The student sitting (facing so he can't see the image) draws it based on the descriptions.

• Talk about the difficulty. Then tell students they are going to do the same thing, only they can't use English!

• Break the class into groups of 4-6. Give each group a set of phonetic symbols and a set of image tiles. You can print and cut out the image from slide 11.

• The task is to come up with a language using the phonemes where one group member can direct a second to recreate a shape through language only. You may need to help get a group started by pointing to a shape and naming it – the group will likely use your word, then start creating their own.

• The link gives a few time-out, time-in mini discussions that can happen throughout the activity.

• At the end of the activity, ask for a couple of groups to volunteer. Create a new arrangement of the tiles and have one member tell the other what to do.

Priming Activity: Word Stem Completion Task
<table>
<thead>
<tr>
<th>Phonetic Symbol</th>
<th>As used in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>pit, tip, stop</td>
</tr>
<tr>
<td>b</td>
<td>bat, tab</td>
</tr>
<tr>
<td>m</td>
<td>mitt, ham, smoke</td>
</tr>
<tr>
<td>f</td>
<td>fig, gift, muff</td>
</tr>
<tr>
<td>v</td>
<td>vat, save</td>
</tr>
<tr>
<td>(th)</td>
<td>thin, bath</td>
</tr>
<tr>
<td>(th)</td>
<td>thus, bathe</td>
</tr>
<tr>
<td>t</td>
<td>tip, put, stick</td>
</tr>
<tr>
<td>d</td>
<td>dip, pad</td>
</tr>
<tr>
<td>n</td>
<td>know, pan, snow</td>
</tr>
<tr>
<td>s</td>
<td>sun, bus</td>
</tr>
<tr>
<td>z</td>
<td>zoom, fuzz</td>
</tr>
<tr>
<td>l</td>
<td>lit, till, slit</td>
</tr>
<tr>
<td>(ch)</td>
<td>chew, hitch</td>
</tr>
<tr>
<td>(j/g)</td>
<td>gem, badge</td>
</tr>
<tr>
<td>(sh/ch)</td>
<td>show, bush, chaperon</td>
</tr>
<tr>
<td>(zz/gg)</td>
<td>treasure, garbage</td>
</tr>
<tr>
<td>r</td>
<td>right, tire, shrimp</td>
</tr>
<tr>
<td>y</td>
<td>you, yew</td>
</tr>
<tr>
<td>w</td>
<td>win, when</td>
</tr>
<tr>
<td>k</td>
<td>catch, back, skin</td>
</tr>
<tr>
<td>g</td>
<td>give, plague</td>
</tr>
<tr>
<td>h</td>
<td>how, who</td>
</tr>
<tr>
<td>i</td>
<td>see, each, machine</td>
</tr>
<tr>
<td>I</td>
<td>it, myth</td>
</tr>
<tr>
<td>e</td>
<td>able, weigh, great</td>
</tr>
<tr>
<td>Ee</td>
<td>said, says, guest</td>
</tr>
<tr>
<td>ae</td>
<td>at, plaid</td>
</tr>
<tr>
<td>ee</td>
<td>about, son, cup, easily</td>
</tr>
<tr>
<td>aw</td>
<td>out, cow, bough</td>
</tr>
<tr>
<td>u</td>
<td>fruit, ooze, move</td>
</tr>
<tr>
<td>U</td>
<td>book, full, could</td>
</tr>
<tr>
<td>o</td>
<td>flow, road, open</td>
</tr>
<tr>
<td>AU</td>
<td>raw, fought, taught</td>
</tr>
<tr>
<td>a</td>
<td>tot, father</td>
</tr>
<tr>
<td>ay</td>
<td>my eye, buy</td>
</tr>
<tr>
<td>oy</td>
<td>toy, boil, lawyer</td>
</tr>
</tbody>
</table>
Sample Groups

<table>
<thead>
<tr>
<th>Phonetic Symbol</th>
<th>As used in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
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<td>o</td>
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<tr>
<td>ay</td>
<td>my eye, buy</td>
</tr>
<tr>
<td>(zz/gg)</td>
<td>treasure, garbage</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Phonetic Symbol</th>
<th>As used in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>w</td>
<td>win, when</td>
</tr>
<tr>
<td>k</td>
<td>catch, back, skin</td>
</tr>
<tr>
<td>aw</td>
<td>out, cow, bough</td>
</tr>
<tr>
<td>u</td>
<td>fruit, ooze, move</td>
</tr>
<tr>
<td>(ch)</td>
<td>chew, hitch</td>
</tr>
</tbody>
</table>

- Tab__, Cha__, Des__, Sof__ Ask the student to fill in the missing letters.
- Show group 1 possible answers: Table, Chair, Desk, Sofa. Ask how many students got these answers.
- Then show group 2 possible answers: Taboo, Chant, Destiny, Soft. Ask how many students chose these words.
- Ask why more students chose the first four words than the second. Because of priming. We are primed to fill in the missing words, which is why most people can read a paragraph with the middle letters blacked out. Priming is also in effect where we guess with words that go together. Group 1 is all furniture. Group 2 are four words that could be correct but have no relationship. Priming makes group 1 more probable.

Additional Activities

• This activity requires a web search, so only works as an in class activity if you are in a computer lab. It works well for homework. The goal is for students to gain awareness of lexical networks by comparing web information and text information.


• We meet a woman who taught a 27-year-old man the first words of his life, hear a firsthand account of what it feels like to have the language center of your brain wiped out by a stroke, and retrace the birth of a brand new language 30 years ago.

Demonstrating the McGurk effect (if you see someone f and hear b, you think you hear f) https://www.youtube.com/watch?v=G-IN8vWm3m0

http://www.pbs.org/wgbh/nova/nature/bird-brains.html

• Birds have an undeserved reputation for low brainpower. In fact, they produce one of the most glorious phenomena in nature: birdsong. How do their brains do it? And what does this skill tell us about the evolution of another remarkable phenomenon, human language?

Links to ToPIX Materials

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19980978/Cognition%20in%20the%20Classroom

Thinking-Language Intelligence In the News:
http://topix.teachpsych.org/w/page/26682121/Cognition%20in%20the%20News

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Video:
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Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

**PowerPoint Presentation**

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com/images/shared/supplement_editions/000/000/124/Language%20and%20Language%20Use.ppt?1416598987.
Chapter 11: Human Development
This instructor resource module is designed to help implement a lesson on attachment. It covers early childhood attachment as well as attachment relationships later in life (namely, romantic attachments). To this end, we review key concepts and provide a general framework for the lesson as well as more specific recommendations for activities, outside resources, and discussion questions. PowerPoint lecture slides consistent with these recommendations are available on the Noba website.

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Build and enhance interpersonal relationships (3.2)

- Content Specific Learning Objectives
  - Explain the way the attachment system works and its evolutionary significance.
  - Identify three commonly studied attachment patterns and what is known about the development of those patterns.
  - Describe what is known about the consequences of secure versus insecure attachment in adult relationships.
Abstract

The purpose of this module is to provide a brief review of attachment theory—a theory designed to explain the significance of the close, emotional bonds that children develop with their caregivers and the implications of those bonds for understanding personality development. The module discusses the origins of the theory, research on individual differences in attachment security in infancy and childhood, and the role of attachment in adult relationships.

Class Design Recommendations

This module can be covered in one long class period (75-90 minutes) or two short class periods (50-60 minutes). If the lesson is taught in two class periods, more time can be dedicated to assessment methods and attachment styles. If the lesson is taught in two class periods, a good place to break is after discussing how parenting impacts children’s attachment style.

Overview for One Class Period

- Introduction
- History of attachment research and core concepts
  - Attachment behavioral system
  - Evolutionary value
  - Harlow's research on contact comfort
- Individual differences in attachment
  - Ainsworth’s strange situation task
  - Three types of attachment: secure, anxious-resistant, avoidant
  - The role of parenting in shaping attachment style
- Influence of early attachment on childhood outcomes
- Attachment in romantic relationships
  - Adult attachment styles
Introduction: Close relationships are a source of great joy (e.g., the special bond shared between children and their parents) and great suffering (e.g., the loss of a spouse). Attachment theory focuses on understanding the nature of these close relationships.

Module Outline

History of Attachment Research and Core Concepts

- *Attachment behavioral system:* John Bowlby developed attachment theory in the 1940s to try to explain why infants and young children show great distress when they are separated from their parents and engage in behaviors aimed at being reunited (such as crying for their parents or pounding at the door).

- *Evolutionary value:* The prevailing psychoanalytic view of the day was that these behaviors are a kind of immature defense mechanism. Bowlby proposed that these behaviors have an important adaptive value. Specifically, he argued that the *attachment behavioral system* serves to help young offspring (who need protection and care) maintain proximity with their primary caregivers.

- *Harlow research on contact comfort:* Some time later, Harry Harlow sought to understand what exactly causes infants to become emotionally attached to their mothers. Harlow's research (with monkeys) found that it is mothers' providing of comfort (rather than food) that leads their young to form emotional attachments to them.

Individual Differences in Attachment: There are individual differences in the styles of attachment bonds young children form with their caregivers.
• **Ainsworth’s strange situation task**: These differences can be assessed using Mary Ainsworth’s *strange situation* task. In this task, children are separated from their parents for a short time and then reunited. Researchers watch how the child responds under these circumstances to assess the child’s attachment style.

• **Three types of attachment: secure, anxious-resistant, avoidant**
  
  ◦ *Secure* (most children fall into this category): these children are distressed when their caregiver leaves, but are quickly comforted when she returns.
  
  ◦ *Anxious-resistant* (about 20% of children fall into this category): these children become very distressed when their caregiver leaves, but are not calmed by her presence when she returns.
  
  ◦ *Avoidant* (about 20% of children fall into this category): these children do not seem overly distressed upon separation from the caregiver and avoid the caregiver when she returns.

• **The role of parenting in shaping attachment style**: The kind of attachment style that a child exhibits has been linked to parenting behaviors (in both correlational and experimental research). Caregivers who are consistently responsive to their children's needs tend to have children who form secure attachment bonds. Caregivers who are inconsistently responsive tend to have children who form anxious-resistant attachment bonds. Caregivers who consistently fail to respond to their children's needs tend to have children who fall into the avoidant attachment style.

Influence of Early Attachment on Childhood Outcomes: Early childhood attachment styles have been linked to a variety of outcomes in childhood. Children who are classified as secure are more likely to have better relationships with friends, be rated more positively by their teachers, and tend to be more persistent on challenging tasks. Children who are classified as insecure-avoidant are more likely to experience difficulties maintaining peer relationships and are more likely to be identified as bullies.

**Attachment in Romantic Relationships**

• **Adult attachment styles**: Hazan and Shaver (1987) extended research on attachment to the realm of adult relationships. These researchers argued that the special close bonding experienced in romantic relationships should be considered an attachment bond.

  ◦ Just as there are three styles of childhood attachment, there are three styles of adult romantic attachment (with the percentages of people falling into each category being similar to those for childhood attachment):
- **Secure**: individuals with this **adult attachment** style find it easy to get close to others and readily become emotionally intimate with romantic partners.

- **Anxious**: individuals with this adult attachment style seek extremely intimate emotional bonds with romantic partners but tend to worry that their partners will leave them.

- **Avoidant**: individuals with this attachment style tend to avoid forming close emotional bonds with romantic partners.

- Impact of adult attachment style on romantic relationships

  - **Finding a partner**: Couples tend to share the same attachment style; if one partner is secure, the other partner is more likely to be secure. In part, this may be because people tend to be more attracted to individuals who have a secure attachment style. However, it may also be because individuals’ attachment style may influence their partner to become more like them (in terms of romantic attachment).

  - **Relationship functioning**: Individuals who have a secure romantic attachment style tend to have more stable, satisfying, and high-functioning relationships. In part, this may be because individuals who are secure are more likely to provide support to their partners when they are in need.

Relation Between Early Attachment Bonds and Adult Attachment: There is some evidence that early attachment style is probabilistically linked to adult romantic attachment style. However, even those who fail to form secure bonds as children can develop a secure romantic attachment style as adults. This is because attachment style is shaped by the joint influence of all of the close relationships a person experiences in life, including relationships with parents, grandparents, friends, teachers, and any other figures with whom the individual forms a close emotional bond.

Attachment and Social Media: Importantly, the attachment style that one develops likely influences social interactions in a wide variety of settings. For example, recent research has found that attachment styles predict differences in the way people use social media: individuals who are avoidant use Facebook less frequently and are less open; individuals who are anxious are more likely to use Facebook more frequently.
Difficult Terms

Adult attachment
Anxious-resistant
Attachment behavioral system
Attachment behaviors
Attachment figure
Avoidant
Insecure attachment
Secure attachment style
Strange situation

Lecture Frameworks

Overview: This lecture is designed for one long-class period (75-90 minutes), but it could be broken up into two shorter class periods (50-60 minutes). After prompting students to think about their own personal relationships, students learn about the history of attachment research and receive direct instruction via lecture and videos on childhood attachment. The latter part of the lecture focuses on adult romantic attachment (including the relation between childhood and adult attachment).

• Warmup Discussion: Ask students to think about a very close relationship they have with a friend or a loved one and have them spend a few minutes writing down words that describe that relationship. Next, invite students who wish to do so to share their answers with a classmate; remind students that classroom discussions are confidential and that their classmates’ responses should not be shared with others outside of class. Finally, bring the whole class together in a discussion about the importance of close relationships—and how they can give us especially positive experiences as well as especially negative experiences (e.g., when there is conflict or loss). Explain that the first of these close social relationships develops in infancy, when a baby forms an attachment to his or her caregiver.

• Direct Instruction of History of Attachment Theory: Refer to the lecture slides to review:
  ◦ Attachment figure
  ◦ Attachment behaviors
  ◦ Adaptive value of attachment behavioral system

• Video of Harlow’s Research: Show classic video footage of Harlow discussing his research.
Before showing the video, prompt students to pay attention to the answer to Harlow's research question and after the video ask students, What did Harlow find? See Outside Resources section below for description and YouTube link to the video.

- **Direct Instruction of Individual Differences in Attachment:** Refer to lecture slides to explain the “strange situation” task and how it is used to measure attachment.

- **The Strange Situation Video:** Show the video of the “strange situation” task. Tell students to pay special attention to children’s behavior at separation and reunion. See Outside Resources section below for description and YouTube link to the video.

- **Direct Instruction of Individual Differences in Attachment:** Refer to lecture slides to:
  - Review the different styles of attachment exhibited by children (secure, anxious-resistant, avoidant)
  - Review the antecedents of the three attachment styles

- **Evaluate Your Own Attachment Style Activity:** This activity gives students a chance to practice evaluating attachment style while connecting the course content to their own personal history (which will improve memory for the content). For a detailed description, please see the Activities/Demonstrations section below.

- **Applied Discussion:** Have students apply what they know about attachment theory to their own experience by having them answer this question: What advice would you give to parents who wish to ensure that their children form a secure attachment?
  - Answers to this question can be used in a discussion about how experiences shape attachment bonds. It also prompts students to think about practical applications for attachment theory.

- **Direct Instruction:** Refer to the slides to review:
  - Outcomes linked to different attachment styles in childhood
  - Adult romantic relationships as attachment relationships
  - Three styles of adult romantic attachment (secure, avoidant, anxious/resistant)
Attachment and dating trends—similarity of partners in attachment style

Impact of adult attachment style on romantic partners’ relationship functioning

• **Celebrity Attachment Style Activity:** This activity provides a fun way for students to review the different styles of adult romantic attachment and their impact on relationship functioning. See section below on Activities/Demonstrations for complete detail on how to do this activity.

• **Applied Discussion:** Have students apply what they know about attachment theory to their own experience by having them answer these questions: (1) What style of romantic attachment would you classify yourself as fitting into? and (2) What experiences have led you to this attachment style? Students should reflect on these answers individually at first, preferably in writing. Then, if students wish to share, invite them to share their answers with the class (in a general classroom discussion it is not recommended to do this as a Think à Pair à Share, in case students do not wish to discuss sensitive information). These questions prompt learning about the different adult romantic attachment styles by having students connect the course content to themselves. It also serves as a good transition to the next topic.

• **Direct Instruction:** Refer to the slide to review: *What is the relationship between early childhood and adult attachment?*

• **Classroom Assessment Activity (CAT):** Ask students to write down the “muddiest point.” With remaining class time, ask students to share their muddiest point and provide additional review on these points.

### Activities & Demonstrations

**Activity—Evaluate Your Own Attachment Style:** This task provides an opportunity for students to practice applying the concept of different attachment styles to a real life example (themselves), thereby enhancing their memory for the material.

• **Time:** 5 minutes

• **Materials:** none needed
• Directions:

1. Ask students to spend a few minutes reflecting on their own early childhood attachment style.

2. You can use the following questions to prompt their writing:

   ◦ Which attachment style do you think you formed?
   ◦ What kinds of early experiences may have led to this attachment style?
   ◦ Do you think this has impacted your later relationships (with friends or romantic partners)? Why or why not?

3. After students have finished writing, have a general class discussion, asking for volunteers to share their answers. Note that some students may not wish to share, so it is not recommended to do this activity as a Think à Pair à Share.

4. Later in the class period (when the topic of adult romantic relationships is being taught), students can perform a similar activity, reflecting upon their adult romantic attachment style.

Activity—Celebrity Romantic Attachment Styles

• Overview: This is a fun activity that helps students apply the concept of adult romantic attachment styles to pop culture.

• Time: 15-20 minutes

• Materials: laptops, tablets, or smartphones (to access the internet)

Additional Activities


- This paper describes an activity in which students critically evaluate the claims of attachment parenting (including designing a study to test these claims). This task can help students understand the difference between attachment (as it is studied academically) and popular media's concept of attachment parenting (whose claims are not supported by research).


- This article offers several suggestions for activities for teaching romantic attachment styles to college students, including the activity described above (Celebrity Romantic Attachment Styles).

Discussion Points

1. Think about the special kinds of personal relationships you have with people you are very close to. What kinds of words would you use to describe these relationships?
2. Reflect on your own attachment bonds with your early caregivers; how would you classify your attachment?
   - This question prompts learning about the different attachment styles by having students connect the course content to their own personal history.
3. What advice would you give to parents who wish to ensure that their children form a secure attachment?
   - Answers to this question can be used in a discussion about how experiences shape attachment bonds. It also prompts students to think about practical applications for attachment theory.
4. What style of romantic attachment would you classify yourself as fitting into? What experiences have led you this attachment style?

- This question prompts learning about the different adult romantic attachment styles by having students connect the course content to themselves.

5. Recent research suggests that teachers’ attachment style can impact their relationships with students. How might teachers of the three adult attachment styles interact differently with their students?

- This question prompts students to go beyond the course content to think about how attachment style may impact other kinds of relationships (beyond just parent/child and romantic relationships).

6. Some people argue that the first few minutes of life are critical for bonding. How would Bowlby and Ainsworth respond to this assertion?

- This question offers a means for reviewing how attachment bonds are formed. It also offers an opportunity to discuss a commonly held misconception.

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**Outside Resources**


http://cdp.sagepub.com/content/15/2/84.short

Strange Situation Video
https://www.youtube.com/watch?v=DH1m_ZMO7GU

Survey: Learn more about your attachment patterns via this online survey
http://www.yourpersonality.net/relstructures/
Video on Harry Harlow’s Research with Rhesus Monkeys
https://www.youtube.com/watch?v=weXEaTKckzY

Evidence-Based Teaching


- Vignettes related to developmental psychology are presented, including vignettes that can be used to spark discussions about infant/parent attachment and romantic attachment.


- This article describes the relation between students’ attachment style and course evaluations. Recommendations are made for how professors might adapt their teaching to form better working relationships with students who have an anxious attachment style. Students could read this article and discuss how adult attachment has an impact on relationships in all kinds of settings. Students could also brainstorm ways to apply lessons learned from this article toward interactions with individuals who have an anxious attachment style.

Links to ToPIX Materials

**Activities, Demonstrations, Handouts**

**Books and Films**
http://topix.teachpsych.org/w/page/19980987/Development%20in%20the%20Classroom
Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at
Cognitive Development in Childhood

Instructor Manual

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Kasey Powers, Amanda Richmond, Anna Ropp

The Development unit covers the lifespan and although often covered in one traditional textbook chapter, development is broken up into three modules covering three major and different topics.

The first module, Cognitive Development in Childhood, discusses how thinking develops through childhood. The interaction between Nature and Nurture covers several topics highlighting how the interactions are important. The module also covers how cognitive change occurs, through quantitative or qualitative changes and examples from Piaget's paradigms are used. Finally the module discusses applications to education and how understanding cognitive development has far reaching effects.

Learning Objectives

- Relevant APA Learning Objectives (2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology's content domains (1.2)
  - Describe applications of psychology (1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
  - Engage in innovative and integrative thinking and problem solving (2.3)
  - Interpret, design, and conduct basic psychological research (2.4)
  - Incorporate sociocultural factors in scientific inquiry (2.5)
• **Content Specific Learning Objectives: Cognitive Development in Childhood**

  ◦ Be able to identify and describe the main areas of cognitive development.
  ◦ Be able to describe major theories of cognitive development and what distinguishes them.
  ◦ Understand how nature and nurture work together to produce cognitive development.
  ◦ Understand why cognitive development is sometimes viewed as discontinuous and sometimes as continuous.
  ◦ Know some ways in which research on cognitive development is being used to improve education.

**Abstract**

This module examines what cognitive development is, major theories about how it occurs, the roles of nature and nurture, whether it is continuous or discontinuous, and how research in the area is being used to improve education.

**Class Design Recommendations**

Cognitive Development is ideally taught over two class periods, as there is some extra material that can be incorporated into this module for a more comprehensive understanding of cognitive development. This can also be taught over 1 class period. Outlines for each option are included. Please also refer to the Noba PowerPoint slides that compliment this outline.

**Two class periods:**

1st class period (50 min – 75 min):

• **Introduction to development**

  ◦ Talk about the different types of development. The three covered in the modules are cognitive, social, and aging.
• Nature vs. nurture
• Continuous or discontinuous development
  ◦ Piaget

2nd class period (50 min – 75 min):
• Applications to education
• Research methods with young children
  ◦ Habituation
• Optional: Extra topics
  ◦ Sociocultural theory (Vygotsky)
  ◦ Information processing theory (Klar)

One class period:

1st class period (50 min – 75 min):
• Introduction to development
  ◦ Emphasis on cognitive development, talk about other types of development
• Nature and Nurture
• Continuous vs. discontinuous development
  ◦ Piaget
• Applications to education
• Research methods with young children
Module Outline

Introduction

• Cognitive development is the development of thinking over the life-span. Thinking is defined as higher-order processes such as problem solving and basic processes such as perception.

• Children's thinking changes dramatically as they age from infants to toddlers to school-age children.

• There are several types of theories of child development: stage theories (Piaget), sociocultural theories (Vygotsky), information processing theories (Klar).

Nature and Nurture

• Nature is biology, what we are born with.

• Nurture is the social and physical environment into which we are born.

• The nature vs. nurture debate is often presented as “which one is it?” but really it is the interaction between the two that is important.

• Depth perception depends on being able to see the right patterns of light at the right time. A person needing corrective surgery may not see the patterns of light until later and depth perception will be off.

• Infants appearance and temperament (nature) elicit different responses (nurture) from those who interact with this. These responses affect cognitive development.

• There is also a choice made as to what is attended to, thus children have a role in shaping their own development.

Does Cognitive Development Progress Through Distinct Stages?

• Development can be studied as continuous or discontinuous change. The growth of a tree is gradual and continuous, with a quantitative change of size measurable. A ladybug's life cycle is sudden and discontinuous, with rapid moments of qualitative change (a new type of creature).

• Jean Piaget gave us a stage theory that has been the basis for much of what we understand about children's cognitive development. Each new stage was entered when the child began
to think in a fundamentally new way – when a qualitative change is observed.

- **Sensorimotor stage (birth - 2 years):** children understand the world through their perception and interaction with the world. They cannot solve the object permanence task before about 9 months.

- **Preoperational stage (2 years – 6 or 7 years):** children can solve the object permanence problem and use symbolic-representation. They are only able to focus on a single dimension and cannot solve the conservation task.

- **Concrete operational stage (6 or 7 years – 10 or 11 years):** Children can solve the conservation task and think logically. However, they fail at thinking systematically and cannot solve the pendulum task.

- **Formal operations stage (11 or 12 years – end of life):** Children can think systematically and hypothetically and can solve the pendulum task. This stage tends not to emerge without formal education and we do not necessarily need this type of thinking to function in day-to-day life.

- Piaget has been challenged and new theories have emerged. By changing variables of Piaget’s classic tasks - time between hiding and searching, using culturally specific objects and cultural experience – the ages at which children progress through the stages changes.

- The debate as to continuous or discontinuous development is ongoing with no definitive answers.

**Applications to Education**

- There are many applications of understanding cognitive development to education.

- In reading, phonemic awareness in kindergarten is a strong predictor of future reading ability.

- In math, numerical knowledge prior to entering school varies widely by socio-economic background. Family engagement in playing board games such as Chutes and Ladders. An experiment where children in low-income families played the game over two weeks, showed improved understanding of numerical concepts.

- A new area in cognitive development is linking brain maturation to changes in thinking.
Difficult Terms

egocentrism
information processing theories
qualitative change
quantitative change

Lecture Frameworks

Overview

Talking about human development provides some interesting challenges. One on hand, many psychology majors want to 'work with kids'. On the other, the average college student thinks old age is eons away and finds little of interest in the later part of the lifespan. The good news is that there are some great attention-grabber activities in this unit. Students love to hear about the little cognitive tasks they can try out on kids around them. Yes, try this at home.

First Class Period

• Discussion/warm-up (5-10 minutes)
  ◦ At the beginning of any unit we like to get an idea of what the students know or think they know, as students will come to class with various levels of preparedness. Start by asking students about what development is and how psychologists could/do study development. Get a general idea of what they know and understand or misunderstand. We like to use one of the discussion questions from the end of the text as a starting point.

• Lecture – Refer to slides for the following:
  ◦ To introduce cognitive development and the various theories: stage, socio-cultural, and information processing. In this module the focus is on stage theories.
  ◦ To talk about nature and nurture. This can be brief if you have already covered it in biological psychology. The emphasis of nature and nurture is on how the two interact. Cover the examples in the text and ask students if they can think of other examples of nature and nurture interaction.
  ◦ To discuss continuous and discontinuous development. Make sure students understand the differences in the two. The images in the text with the tree and ladybug make this
point clear.

- To introduce Piaget and the stages. This activity is to give students concrete examples of one way to measure each stage.

- To demonstrate and show videos of classic tasks. Discuss what students observed about children's thinking in each example. Ask how what they observed differed from what they expected to see in the demonstration. See “Activities/Demonstrations” for materials, videos, and instructions.

  - Object permanence: hide a book or other object
  - Three mountains task: use image or show video only
  - Conservation: coins, crackers, or cups of water
  - Hypothetical reasoning: one leg problem.

Second Class Period

- Discussion/warm-up (5-10 minutes)

  - Ask students if they have any questions from previous class. To start the discussion, use another discussion question from text.

- Lecture – Refer to slides for the following:

  - To talk about applications to education, using the examples from the text. Ask students to come up with some other possibilities of how understanding cognitive development is important to education.

- Activity - Habituation activity

  - See “Activities/Demonstrations” for materials and instructions

- Discussion Extra Topic: Research methods

  - Ask students how you would set up experiments with children (reminding them that you have seen examples in videos and read about them in the text). Then ask about children who can't talk yet. We know how they react in a situation, but how do we know what they are thinking.
Activities & Demonstrations

Demonstration and Video of Piaget's classic tasks: In Class Activity

Piaget's stage theory is central to much of what we understand about children's cognition and is a starting point of many theories. Understanding these stages and the variations of the tasks used to measure them are crucial to students’ analysis of the theory’s implications.

This activity is open and can be done without the demonstrations; as all of your students will easily be able to solve the problems, they will see a bit of ridiculousness at being asked. But it can also be a way to start a discussion as the tasks grow in complexity en route to the formal operational stage, which will actually require some thinking.

A note: the video links included are all live and working at the time of publication and have been used by us for several years. However, please check that they work before your class as YouTube or its users do occasionally take things down.

Materials: Links to video clips and objects for each demo.

Object permanence task: hide a book or other object

- Show students a book. Hide the book behind a podium or desk. Ask the students if the book still exists.
- Students will know that obviously the book does not cease to be just because they can't see it. Talk about how infants will fail this task.
- Video: https://www.youtube.com/watch?v=NjBh9Id_ylo
- Some students are interested in object permanence as a phenomenon in more intelligent
animals. Here is a study on this phenomenon in dogs: http://www.uky.edu/~zentall/pdfs/article
object%...

Three mountains task Use image or show video only

- Show IMAGE Ask the students to tell you what they see. Then show second IMAGE (opposite side) and ask student what they see. Then ask them what you see (if you were sitting on the opposite side of the hypothetical table).
- Then talk about what children will likely answer based on what stage they are in.
- Video: https://www.youtube.com/watch?v=OinqFgsIbh0&featur...

Conservation: coins, crackers, or cups of water

- Three graham crackers or 10 coins are easier to transport than three cups and water.
  - If graham crackers, give a student volunteer one cracker and you keep two crackers. Ask if you have the same amount. The student will say no. Then break the student's cracker in half and ask if now you have the same amount.
  - If coins, show two rows of five coins lined up equally. Ask a student volunteer if row A has more, row B has more, or if they are the same. Then spread one of the rows out to be longer than the other (still with five coins) and ask again.
  - If cups, have two cups of the same height and width with the same amount of water. Ask a student volunteer is cup A has more, cup B has more, or if they have the same. Then pour one cup into a different cup (either tall and then or short and fat – different from the first) and ask again.

- After one or all of these talk about what the students thought and what children in will answer depending on what stage they are in.
- Video – lack of conservation: https://www.youtube.com/watch?v=GLj0I2FLKvg
- Video – can conserve: https://www.youtube.com/watch?v=gA04ew6Oi9M&featur...

Hypothetical reasoning: one leg problem

- Formal Operations – One leg scenario: Suppose that from this moment on, every human baby is born with only one leg. What would have to change?
  - Some things to think about: One-legged babies are normal in every other way; overlap of
a world with aging two-legged people and the younger one-legged people.


- Discuss scientific procedure and systematic thinking.
- Video - Deductive reasoning: https://www.youtube.com/watch?v=zjjdcXA1KH8

Habituation as a method for understanding cognition in young children: In-Class Activity

This activity provides a quick visual for how habituation works because students will react to the balloons popping. Discussing their reactions and feelings will help them transfer those feelings to what we can learn about infant thinking. The balloon part of the activity is based on an old magic trick and the discussion is from original research by Kellman and Spelke (1983).

This is another one of those activities we recommend practicing before class. The balloon with the tape will pop instead of deflate if the tape and pin aren't lined up, and a couple of tries on your own will give you a successful trial in class.

- Materials:
  - PowerPoint slide for the activity
  - 6 balloons blown up before class.
  - Use tape to make and “X” on one of the balloons
  - a push pin

- Directions: Start by asking about research methods and what kinds of methods you use with children. Ask how do you study infants and children who can’t yet talk – how do we know what they are thinking when they can’t tell us.
- Have six volunteers come to the front of the class. Give each volunteer a balloon. Make sure the tape X is showing on the last balloon. You will be able to see it, the class will probably not notice. Tell everyone to watch the reactions of their classmates.
- Walk down the line, popping the first five balloons. The students will jump or cringe at the balloon pooping and as they very quickly habituate to what is coming will begin to anticipate
the pop. For added fun, vary the interval at which you pop.

- When you get to the last balloon push the pin at the center of the tape X. The last balloon should not pop but slowly deflate. Students will anticipate another pop and prepare to cringe or jump or cover their ears, but they will have a new reaction when the pop doesn't come.

- Ask students about their reaction and how the popping made them feel. How did they react or feel when the last balloon didn't pop. Ask them what they observed about the reactions of classmates. Ask what they think watching reactions like this in infants can tell us about their thinking.

- Discuss Kelman and Spelke's (1983) research. Show the results from this paper. Talk about what these researchers found and what conclusions can be made.


Basic activity also written up here-- [http://www.devpsy.org/teaching/infant/habituation....](http://www.devpsy.org/teaching/infant/habituation....)

### Additional Activities


- This is a hands-on activity that works in almost any class size. Students break into small groups and each group gets a set of motor and verbal development milestones. The goal is to correctly order them. If using small groups it can be a race to see who can correctly order the list first. Instead of small groups you can also have volunteers to hold each milestone and listen to the class a la The Price is Right to order the milestones. It's a fun activity that can get the class moving.


### Supplementary Materials
Other video demonstrations for developmental psychology

- Dimensional Change Card Sort Task: http://www.youtube.com/watch?v=tXZau5VIlvU
- Rouge Self Awareness Test: http://www.youtube.com/watch?v=cTP01Wbsh0E&feature...
- Deloache Shrinking Room: http://www.youtube.com/watch?v=vt6Zu4oJRnM
- Shopping Cart Self Awareness Test: http://www.youtube.com/watch?v=k-rWB1jOt9s&feature...
- Gender Roles: http://www.youtube.com/watch?v=pWc1e3Nbc2g
- Visual Cliff: http://www.youtube.com/watch?v=eyJMq11xWzM
- Infant Reflexes: http://www.youtube.com/watch?v=gyVLD0hl0XY&feature...
- Neonatal imitation: http://www.youtube.com/watch?v=l0N6mlpoN3M


A Ted talk running 18:29 about infant and child cognition. “‘Babies are like the R&D division of the human species,’ says psychologies Alison Gopnik. Her research explores the sophisticated intelligence-gathering and decision-making that babies are really doing when they play.”

Outside Resources


Evidence-Based Teaching


- Students use a questionnaire to interview their parents and write a paper about different topics in child development. A reflective questionnaire given after the papers were turned in, but before they were graded allowed the researcher to examine the effectiveness of the assignment.

Suggestions from the Society for Teaching's Introductory Psychology Primer


POSSIBLE ASSESSMENTS (Out of Class)

APA's Division 7 (Developmental Psychology) Web Site (http://ecp.fiu.edu/APA/div7). For this assignment, students will go to the Web site, browse, and then write a one- to two-page summary of what they found of interest on the Web site, and what they learned about developmental psychology by browsing. (LO: 1.2a(4), 2.2, 6.4b)

Journal Article Scavenger Hunt. For this assignment, students will choose a topic of interest (related to developmental psychology) and then use PsycINFO to locate three empirical journal articles – each article must be from a different journal (for example, *Developmental Psychology, Child Development, Infant and Child Development Journal*, etc.). Students then write a summary of each of the three journal articles (paying close attention to the method and results of each article) and describe what each of the articles tells us about the students' topic of choice. (LO: 1.2a(4), 2.2, 3.1, 6.4b)
Web Site Evaluation. For this assignment, students choose one organization from a list provided (example organizations include March of Dimes, Autism Speaks, La Leche League International, etc.). The students then use Google to find the organization's Web site. After closely examining the site, the students respond to the following questions: (1) From the list you have been provided, which organization did you choose? Why did you select this particular organization? What drew you to it? (2) Based on a close examination of the Web site, what does this organization do, specifically, to encourage children's development and well-being? Is this organization invested in children's physical, cognitive, or social development? How so? (4) What are a few strengths of the artistic layout of the site? What are a few weaknesses of the artistic layout? Is the site easy to navigate, or difficult? How so? (5) In your future, do you think you might ever use this site as a source of developmental psychology information? Why, or why not? (LO: 3.1, 6.4b)

The Interaction of Nature and Nurture. For this assignment, students will identify and describe, in a short paper, three essential features of who they are. They will then describe how they think these three features are due to both nature and nurture, citing specific examples. (LO: 1.2a(4), 1.2d(1), 3.1, 4.4, 9.1)

ACTIVITIES & TECHNIQUES (In Class)

“Six Things to Never Say to or Ask a Developmental Psychologist.” This is an introduction to developmental psychology that can occur on the first day. The activity dispels myths that many people hold regarding who developmental psychologists are and what developmental psychologists do. This is a fun, informative activity that will introduce students to developmental psychology and help give them a better understanding of what developmental psychology is (and is not) about. (LO: 1.2d(1), 2.2, 3.)

- “You must love children!” (Why it's a myth: Developmental psychology is not about children only. Rather, it is about the lifespan – here, you can go over the periods from prenatal to late adulthood.).
- “Can you give me parenting advice?” (Why it's a myth: Developmental psychology is about so much more than parenting. Life span development is the study of how people grow, change, and stay the same over the course of their life, with focuses on three topical areas: physical, cognitive, and social.)
- “It must be fun to play with kids all day. Developmental research must be a blast!” (Why it's a myth: Research in developmental psychology is diverse, including observations,
interviews, fMRI, longitudinal, cross-sectional study, etc., and the research focuses on all age groups.)

- “So, is it nature or nurture?” (Why it’s a myth: Developmental psychologists recognize that almost everything about us can be explained by an interaction between nature and nurture; neither nature nor nurture alone is sufficient to explain who we are.)

- “Our time as a baby is the most important, right?” (Why it’s a myth: Every life period is important in its own way. This would be a good time to introduce the ongoing debate in developmental psychology over the importance of early life experiences versus later life experiences, and to present the idea of sensitive and critical periods.)

- “Why bother studying development? Aren’t we all the same?” (Why it’s a myth: Each of us belongs to a cohort, or people who were born around the same time and in the same place as us. This is a good time to introduce cohort effects and how the make for different developmental ecologies.)

“Who Would Have Said It?” To really know developmental psychology, you have to know about the “key players.” In this activity, students are presented with a list of statements and a list of many of the “key players” of developmental psychology, and they match each statement with its correct “key player” (see Appendix A). This is a way to introduce students to many of the most well-known people in developmental psychology, while giving them a beginning understanding of what each person’s theoretical perspective. (LO: 1.2a(4), 1.2d(1))

“What are the Myths of Developmental Psychology?” Using Scott Lilienfeld’s (2009) book, 50 Great Myths of Popular Psychology: Shattering Widespread Misconceptions about Human Behavior, quiz the students on their knowledge of developmental psychology. On either PowerPoint slides or a handout, list some (or all) of the myths provided in the developmental psychology section of Lilienfeld’s book and ask the students to respond to each with “true” or “false.” Some of the myths in the book: Playing Mozart to an infant boosts their intelligence, adolescence is inevitably a time of psychological turmoil, most people experience a midlife crisis in their 40s or early 50s. Lilienfeld’s section on human development lists over 20 myths and their explanations. This can be an eye-opening activity for students, as they are often surprised to learn that they have believed some (or all) of these myths. (LO: 1.2a(4), 1.2d(1), 2.2, 3.1)
This module has an associated PowerPoint presentation. Download it at http://nobaproject.com//images/shared/supplementEditions/000/000/114/Cognitive%20Development%20in%20Childhood.ppt?1416598448.
Outside Resources

Podcasts: Society for Research on Adolescence website with links to podcasts on a variety of topics related to adolescent development
http://www.s-r-a.org/sra-news/podcasts

Study: Add Health website on one of the biggest longitudinal studies of adolescence to date
http://www.cpc.unc.edu/projects/addhealth

Video: A selection of TED talks on adolescent brain development
http://tinyurl.com/lku4a3k

Web: UNICEF website on adolescents around the world
http://www.unicef.org/adolescence/index.html
Chapter 12: Personality
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Personality Traits

Instructor Manual

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Kasey Powers, Amanda Richmond, Anna Ropp

The purpose of this unit is to help students understand what personality is, how it's measured, and how it influences behavior.

In the first module, Personality Traits, the authors explain what personality traits are, as well as offering an overview on the most popular model of personality, the Five-Factor Model. The author then provides students with other approaches to understanding personality, as well as a discussion on the person-situation debate.

Learning Objectives

• Relevant APA Learning Objectives (Version 2.0)
  ◦ Describe key concepts, principles, and overarching themes in psychology (1.1)
  ◦ Develop a working knowledge of psychology's content domains (1.2)
  ◦ Describe applications of psychology (1.3)
  ◦ Demonstrate psychology information Literacy (2.2)
  ◦ Engage in innovative and integrative thinking and problem solving (2.3)
  ◦ Build and enhance interpersonal relationships (3.3)
  ◦ Interact effectively with others (4.3)
  ◦ Apply psychological content and skills to career goals (5.1)
  ◦ Exhibit self-efficacy and self-regulation (5.2)

• Content Specific Learning Objectives: Personality Traits
List and describe the “Big Five” (“OCEAN”) personality traits that comprise the Five-Factor Model of personality.

Describe how the facet approach extends broad personality traits.

Explain a critique of the personality-trait concept.

Describe in what ways personality traits may be manifested in everyday behavior.

Describe each of the Big Five personality traits, and the low and high end of the dimension.

Give examples of each of the Big Five personality traits, including both a low and high example.

Describe how traits and social learning combine to predict your social activities.

Describe your theory of how personality traits get refined by social learning.

Abstract

Personality traits reflect people's characteristic patterns of thoughts, feelings, and behaviors. Personality traits imply consistency and stability—one who scores high on a specific trait like Extraversion is expected to be sociable in different situations and over time. Thus, trait psychology rests on the idea that people differ from one another in terms of where they stand on a set of basic trait dimensions that persist over time and across situations. The most widely used system of traits is called the Five-Factor Model. This system includes five broad traits that can be remembered with the acronym OCEAN: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Each of the major traits from the Big Five can be divided into facets to give a more fine-grained analysis of someone's personality. In addition, some trait theorists argue that there are other traits that cannot be completely captured by the Five-Factor Model. Critics of the trait concept argue that people do not act consistently from one situation to the next and that people are very influenced by situational forces. Thus, one major debate in the field concerns the relative power of people's traits versus the situations in which they find themselves as predictors of their behavior.

Class Design Recommendations

This module can be taught in a single class period or less, with the unit as a whole taking 1-2
class periods. Please also refer to the Noba PowerPoint slides that complement this outline.

1st class period (25 min – 40 min):

- Overview
  - What is personality?
  - What do we mean by personality traits?
- The Big 5
  - OCEAN
- Other Approaches
- Person v. situation debate

**Module Outline**

**Introduction**

- Personality is the characteristic ways that people differ from one another. Personality psychologists try to describe and understand these differences. We can best understand the differences between individuals by understanding their personality traits. Personality traits reflect basic dimensions on which people differ. An important feature of personality traits is that they reflect continuous distributions rather than distinct personality types.
- There are three criteria that are characterize personality traits: (1) consistency, (2) stability, and (3) individual differences.

**The Five-Factor Model of Personality**

- If we want to understand the fundamental ways in which people differ from one another, we can turn to the words that people use to describe one another (lexical hypothesis). Research that used the lexical approach showed that many of the personality descriptors found in the dictionary overlap. Statistical methods (specifically, a technique called factor
analysis) helped to determine whether a small number of dimensions underlie the diversity of words identified. The most widely accepted system to emerge from this approach was “The Big Five” or “Five-Factor Model”

- Scores on the Big Five traits are mostly independent.
- Traits are important and interesting because they describe stable patterns of behavior that persist for long periods of time. These stable patterns can have broad-ranging consequences for many areas of our life.

Facets of Traits (Subtraits)

- There is value in considering lower-level units of personality that are more specific than the Big Five traits (i.e., facets). Although personality researchers generally agree about the value of the Big Five traits as a way to summarize one's personality, there is no widely accepted list of facets that should be studied.

Other Traits beyond the Five-Factor Model

- Despite the popularity of the Five-Factor Model, it is certainly not the only model that exists. Some suggest that there are more than five major traits, or perhaps even fewer.
- Hans Eysenck suggested that Extraversion and Neuroticism are most important. Eysenck believed that by combining people's standing on these two major traits, we could account for many of the differences in personality that we see in people.
- Another revision of the Big Five is the HEXACO model of traits. This model is similar to the Big Five, but it posits slightly different versions of some of the traits and adds Honesty-Humility as a sixth dimension of personality.
- Researchers have suggested other traits that capture interesting aspects of our behavior (e.g., need for achievement, need for cognition, narcissism, etc.)

The Person-Situation Debate and Alternatives to the Trait Perspective

- If one looks closely at people's behavior across many different situations, the consistency is really not that impressive. The person-situation debate pitted the power of personality against the power of situational factors as determinants of behavior that people exhibit. Therefore, instead of studying broad, context-free descriptions, like the trait terms we've described so far, Mischel thought that psychologists should focus on people's distinctive...
reactions to specific situations (e.g., when are students more likely to cheat on a test? When no one is proctoring it? When they know there are limited consequences?). Thus, Mischel thought that specific behaviors were driven by the interaction between very specific, psychologically meaningful features of the situation in which people found themselves, the person's unique way of perceiving that situation, and his or her abilities for dealing with it.

- As is often the case, it turns out that a more moderate middle ground than what the situationists proposed could be reached. It is certainly true, as Mischel pointed out, that a person's behavior in one specific situation is not a good guide to how that person will behave in a very different specific situation. Research conducted after the person-situation debate shows that on average, the effect of the “situation” is about as large as that of personality traits. However, it is also true that if psychologists assess a broad range of behaviors across many different situations, there are general tendencies that emerge.

- Personality traits give an indication about how people will act on average, but frequently they are not so good at predicting how a person will act in a specific situation at a certain moment in time. Thus, to best capture broad traits, one must assess aggregate behaviors, averaged over time and across many different types of situations.

Difficult Terms

- Continuous distributions
- Factor analysis
- Person-situation debate
- Facets
- Lexical hypothesis
- Openness
- Conscientiousness
- Neuroticism
- Extraversion
- Agreeableness
- Personality trait
Lecture Frameworks

Overview

As with many of the topics we cover in Intro, personality is fun to teach because it’s so relatable for students. When you think about it, your students are constantly meeting new people (e.g., in the dorms, in their classes each semester, in student groups, etc.), and they often need to describe and understand what these people are like (e.g., my roommate is messy/tidy/responsible, etc.). As a result of a lifetime of experience, students have an implicit understanding of personality. That means your job is to formalize that knowledge and let them know what research says about personality!

- Discussion/Warm-Up
  - You could start this section off by asking students to describe themselves – give them a minute or so to jot down five words that describe their personality. Note: make sure you ask them to describe their personality, not their roles (sister, teammate) or other attributes (tall, brunette). Consider having them share descriptions in small groups or with the class as a whole. You can use the debriefing to this warm-up activity to formally introduce main concepts: traits, trait stability, etc.
  
  - An alternative approach to the above suggestion is to assign your students to take a quick Big 5 assessment out of class and to bring their results to class (see activities/demonstrations, below). Then, once you have introduced the concept of personality and personality traits, you can use the assignment to segue into discussing the Big 5.

- Lecture – Refer to slides for the following:
  - Begin by introducing the idea of traits, a defining feature of which is some degree of stability. Refer to the slide for a more in-depth discussion of the concepts of consistency and stability.
  - To introduce The Big 5—Five Factor Model
    - Compared to many concepts students will learn throughout the semester, the five factor model of personality is relatively easy to comprehend. This means you can spend less time lecturing and more time applying and discussing the concepts.
    - One fun way to present the personalities is using characters from popular media to illustrate each of the Big 5 (e.g., you could use the cast of popular TV shows, public
figures or widely known stories such as Harry Potter, etc.). Of course, not all students will be familiar with such references, so make sure to explain how that character exemplifies that personality characteristic. Even better, show a clip.

- To add to your discussion of the Big 5, you can also talk about life outcomes associated with each trait (e.g., neuroticism is related to relationship quality, perceptions of life satisfaction, physical well-being, etc.).

- Class Activity: The Big 5
  - Now is also a good time to include the activity from the beginning of class (whichever one you picked). If you had students describe themselves, have them go back and match each of their descriptors with one of the Big 5 traits (e.g., if they described themselves as organized, that would be describing conscientiousness; if they described themselves as social or outgoing, that would be extraversion; adventurous might be openness). If you had them take a Big 5 assessment, ask them to do a short mini-writing describing their personality according to the Big 5 (see activities/demonstrations, below).
  - Next, introduce the facets of the Big 5 traits. It is here, in the facets that students will get a more nuanced understanding of these traits. Again, the material is relatively straightforward to understand which will leave more time for discussion.

- Lecture – Refer to slides for the following:
  - To look beyond the Big 5: If you have time and are interested, you can also teach students about other approaches and personality traits (e.g., Eysenck, see slides). This should help students to understand that describing behavior can be complex and that there isn’t a single way that perfectly captures personality. If you want to talk about some of the traits, here are some ideas for examples you could use:
    - Machiavelli: Little Finger from Game of Thrones, Francis from House of Cards, Tony Soprano from the Sopranos, President Snow from the Hunger Games, Vee from Orange is the New Black
    - Narcissism: Gilderoy Lockhart from Harry Potter, Ron Burgandy from Anchorman, Dr. House from House, Barney from How I Met Your Mother, Gaston from Beauty and the Beast, Michael Scott from The Office.
    - Optimism: Kenneth from 30 Rock, Olaf from Frozen, Michael J. Fox (you could read a few excerpts from his interviews or book), J.D. from Scrubs, Marshal from How I Met Your Mother
○ To talk about the Person-Situation debate. It's important that remind students that personality isn't destiny – that is, just because someone is an “introvert” doesn't mean he/she will behave that way all of the time. To really demonstrate this concept, you can talk about the differences in behavior that occur in a library vs. a concert. In a library, almost all people are quiet (including extraverts); in a concert, most people are outgoing, yelling, and dancing (including introverts). This helps students understand that while personality may predict a lot of behavior over time (i.e., the consistency and stability you mentioned at the beginning of lecture), that the situation is also useful in understanding and predicting behavior.

Activities & Demonstrations

Personality Profile (Part I): In and Out of Class Activity

This in-class mini-writing is designed to help students apply the information on the Five Factor Model of personality.

• Time: Out of class: 15 minutes; In class: 5-10 minutes
• Materials: Link to personality assessment, students need to print their results and bring to class, pen and paper.
• Directions:

○ First, you will need to assign the survey ahead of time. Students should complete the survey outside of class and bring the results with them to class (so they can use the results for their mini-writing).

○ Once you have gone over the Big 5 in class, have students write about their personality based on their results and what they learned. Make sure you explain that you want them to apply the information, not just state whether they were high or low on certain traits. That is, have them explain the behaviors associated with each trait (e.g., I scored very highly on conscientiousness, which means that I am more likely to be on time, organized, and follow through with my commitments).

• Links to Big 5 Assessments (choose one)
Observing Personality: In-Class Demonstration

This demonstration is designed to help students observe personality in an applied setting. This activity can take quite a bit of time, but is a fun way to get students up and out of their seats.

• Time: 25 minutes for demo and writing
• Materials: only pen and paper for writing
• Directions:
  ◦ Have students get into medium or large groups (8-15 students depending on your class size). Once they are in groups, let them know that they will be making a human obstacle course – where most of the students are the obstacles and one group member goes “through” the obstacle. Depending on your classroom, you may need to do this in a hallway, common area, or outside. Also, make sure to emphasize safety while giving instructions.
  ◦ Give them about 10 minutes to build their course – it will take a few minutes for them to stop feeling awkward and to brainstorm ideas. Once they start to feel comfortable, they will put their idea into action. If you want, you can give a point or two of extra credit to the team that comes up with the best obstacle course (you will be amazed at how creative some groups get).
  ◦ Once all obstacle courses have been completed, students return to their sits and complete a mini-writing on their experience. For example, you can ask students to describe their group members in terms of their Big 5 traits (no names necessary). Because this activity is a little extreme, students tend to notice the spectrum of traits. For example, some students are open to the idea from the get go and jump right in, others need a little time to observe and warm-up to the idea (openness). Some students happily go along with the group's ideas, others may be aggressive in asserting their own vision (agreeableness). Some students clearly feel comfortable with their new group members and engage them in discussion (extraversion).
  ◦ Note: this activity takes a few minutes for students to warm-up to (there is a lot of personal contact and group dynamics). Your job is to keep encouraging them – they will eventually get into it and you will be blown away by how creative they can become. It
creates a rich experience from which they can draw-upon for their mini-writing.

Additional Activities


- This is an excellent vehicle for discussing the nature and application of personality testing. Students are exposed to a real test in an engaging yet safe and ethical way. Advance preparation is minimal, and no prior knowledge of psychology is necessary. The activity is appropriate for classes of any size.


- This activity helps students identify and examine their implicit personality theories and makes personality theories concrete and understandable. Advance preparation is minimal, and the activity is appropriate for classes of all sizes. This can be done in-class or outside of class with a writing assignment.


- Previously, psychology instructors have used popular music to illustrate psychological concepts in the classroom. In this study, students enrolled in a personality theories class heard 13 popular songs that demonstrated various concepts. Students then selected and analyzed their own songs that contained elements of personality theories. Test grades and student evaluations of the demonstration provided support for the use of this activity for teaching personality theories.

Students used the Five Factor Model of personality to analyze the personality of entertainer Johnny Carson through his The New York Times obituary. Students evaluated this assignment highly: A majority indicated that the assignment was interesting, enjoyable, and useful in helping them to understand and apply the Five Factor Model, and all agreed that the assignment was thought-provoking.


This activity illustrates what is often called the Barnum effect in personality testing, that is, an individual's tendency to believe in the validity of personality descriptions that are vague enough to apply to virtually everyone. This activity can be used in any size class and involves all the students in the class. It requires about 10 minutes in one class period and 20 to 30 minutes in a subsequent class.

**Outside Resources**

Web: International Personality Item Pool
http://ipip.ori.org/

Web: John Johnson personality scales
http://www.personal.psu.edu/j5j/IPIP/ipipneo120.htm

Web: Personality trait systems compared
http://www.personalityresearch.org/bigfive/goldberg.html

Web: Sam Gosling website
http://homepage.psy.utexas.edu/homepage/faculty/gosling/samgosling.htm

**Evidence-Based Teaching**


This article presents an activity using in-class personality inventories and a behavior
checklist to generate discussion items for a class activity later in the semester. Specifically, students attempt to predict Personality X Behavior correlations based on the class’s self-reports and then learn the outcomes for their predictions. The activity allows instructors (a) to deepen and apply students’ understanding of the 5-factor model of personality (or any other traits used); (b) to explain Type I and Type II errors and the contingent nature of research; (c) to clarify the nature of correlation, particularly negative correlations; and (d) to explore students’ implicit personality theories. Students seemed to value the activity on the 8 occasions of its use and 2 formal evaluations.


- This article describes a classroom activity to demonstrate (dis)agreement in personality judgments, using an exercise derived from Watson’s research on the accuracy of rating strangers’ personalities. On the first day of class, undergraduate students in psychology courses rated their own personality and the personality of a classmate, using items from the International Personality Item Pool (IPIP). Across five samples, self-other correlations were strong for extraversion but varied for the other four traits. Comparisons with control groups on relevant test items provided preliminary evidence that the exercise promotes learning of relevant material.


- This exercise uses the Internet-based “Ice Cream Personality Test” to help undergraduates understand the principles of personality testing including reliability, validity, Barnum statements, and generalizability. Results indicated that the Ice Cream Personality Test, although great fun, lacked reliability and validity. Students found this exercise enjoyable, useful, thought provoking, and apt to make them skeptical about personality tests they might encounter on the Internet or elsewhere.


- In this article the authors describe a technique for teaching personality theories to undergraduate psychology students. The method shows students segments from feature films that illustrate key concepts. They present qualitative and quantitative data supporting the utility of this teaching technique.
Suggestions from the Society for Teaching's Introductory Psychology Primer


POSSIBLE ACTIVITIES (In Class)

Design Your Own Personality Test:

- Students should work together to generate a list of what they deem to be the most important personality variables. Then, ask them to develop items to assess these different constructs. Students can administer their test to volunteers and then analyze the results of their study. This helps to provide students with hands-on experience related to generating theories, creating assessment items, conducting research, and examining data.

Act Out Your Favorite Defense Mechanism

- After learning about Freud's defense mechanisms, students should be split into small groups and asked to select a defense mechanism to demonstrate to the class. Classmates can use their knowledge to determine what is being acting out. Having students perform should help to break the uniformity of a lecture class and be a fun way to help student distinguish concepts that may otherwise blend together and/or be difficult to distinguish.


Uncover Your Unconscious:

- Present students with sample depictions of projective assessments, such as the Rorschach Test and the Thematic Apperception Test (TAT). Have students report their gutlevel feelings. Then, have students assess themselves and their classmates using Freud's model of personality. Learning about these concepts from a personal vantage point should allow for more meaningful acquisition of knowledge, and students tend to find this interesting
and fun. The diverse responses should also help to identify some of the flaws with the psychoanalytic theory, including the inability to prove or disprove claims.

- For an ink blot generator and other useful tools see: http://www.makingthemodernworld.org.uk/learning_modules/psychology/02.TU.04/?section=13

Participate in Online Personality Inventory:

- Have students examine their own personality traits by completing an online questionnaire. This activity will allow students first-hand experience with the items that comprise empirically-sound, previously established inventories, as well as allow them to apply relevant findings to their understanding of their own personality. Used in combination with projective measures of personality, this activity should provide a nice contrast between the different forms of assessment.

- Sample online personality inventories can be found at: http://www.personalitytest.org.uk/ for the Big Five, and for the NEO-FFM see: http://www.class.uidaho.edu/psyc310/lessons/lesson03/lesson03-1_homework.htm

Zodiac Signs and Personality:

- Students are given a list of personality descriptions based on astrology and zodiac signs. They then have to choose which one best describes them. The class discussion focuses on the difference between empirically tested theories of personality and zodiac signs. A discussion of the Barnum effect and illusory correlation help students understand the theoretical basis for personality inventories. http://www.teachpsychscience.org/pdf/316-201165139AM_1.PDF

POSSIBLE ACTIVITIES (Out of Class)

Reflection Paper

- Have students apply the concepts presented in class to someone they have experience with outside of the classroom. Ask students to analyze the personality characteristics of a popular television character, a family member, friend, or explain a celebrity's public behavior in terms of their specific traits. This helps to make concepts from class more relevant and relatable to their lives outside of the classroom. For videos of interesting characters to use as subjects for the reflection papers, see http://www.clipsforclass.com/personality

Practice Quiz
• Students can test their understanding and comprehension of Freud's psychoanalytic theory of personality by participating in this online quiz. Feedback is immediately administered. This is a quick and easy supplemental review of concepts to assure students are grasping the finer details of Freud's theory and are prepared for upcoming examinations
• http://webspace.ship.edu/cgboer/persquizfreud.htm

Links to ToPIX Materials

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19981026/Personality%20in%20the%20Classroom

Current events/news:
http://topix.teachpsych.org/w/page/23137146/Personality%20in%20the%20News

Video/audio:
http://topix.teachpsych.org/w/page/19981025/Personality%20Videos

Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

**PowerPoint Presentation**

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com//images/shared/supplementEditions/000/000/132/Personality%20Traits.ppt?1416599101.
Chapter 13: Psychological Disorders
The Psychological Disorders unit offers modules on anxiety and related disorders, mood disorders, schizophrenic disorders, and personality disorders.

By the end of the unit, students should know about the distinctions between the various disorders and how and when disorders “become” disorders. They should also have a general overview of the etiology, treatment, and risk factors of developing a particular disorder.

Note: It has long been true that studying psychological disorders has a way of making students of psychology self-conscious. Some begin looking for symptoms in themselves. Others volunteer personal information about struggles with disorders, occasionally inappropriately. Still others have a strong reaction to the idea of diagnosing disorders (which they feel—perhaps correctly—can stigmatize individuals). Instructors should simply be aware of these concerns and treat them sensitively. The emphasis on clinical aspects of psychology in this module are, in many ways, the best representation of the “core” of psychology as it is most commonly practiced in modern times.

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology's content domains (1.2)
  - Describe applications of psychology (1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
○ Demonstrate psychology information literacy (2.2)
○ Build and enhance interpersonal relationships (3.2)
○ Adopt values that build community at local, national, and global levels (3.3)

● Content-Specific Learning Objectives: Anxiety and Related Disorders

○ Understand the relationship between anxiety and anxiety disorders.
○ Identify key vulnerabilities for developing anxiety and related disorders.
○ Identify main diagnostic features of specific anxiety-related disorders.
○ Differentiate between disordered and non-disordered functioning.

Abstract

Anxiety is a natural part of life and, at normal levels, helps us to function at our best. However, for people with anxiety disorders, anxiety is overwhelming and hard to control. Anxiety disorders develop out of a blend of biological (genetic) and psychological factors that, when combined with stress, may lead to the development of ailments. Primary anxiety-related diagnoses include generalized anxiety disorder, panic disorder, specific phobia, social anxiety disorder (social phobia), posttraumatic stress disorder, and obsessive-compulsive disorder. In this module, we summarize the main clinical features of each of these disorders and discuss their similarities and differences with everyday experiences of anxiety.

Class Design Recommendations

The anxiety module would be best spread out over two class sessions.

Please also see the Noba PowerPoint slides that correspond to this module.

First class period (50-75 min):
Introduce anxiety disorders
- Talk about generalized anxiety disorder
- Conduct class activity: Learning about generalized anxiety disorder
- Describe panic disorder and agoraphobia
- Explain specific phobias

Second class period (50-75 min):
- Describe social anxiety disorder
- Talk about posttraumatic stress disorder
- Go over obsessive compulsive disorder
- Conduct class activity: Anxiety-based disorders – Case studies
- Discuss treatments for psychological disorders

Module Outline

Introduction

Anxiety refers to experiencing negative affect following physical symptoms such as increased heart rate, muscle tension, etc. Anxiety can be positive as it pushes us to plan our future. For some people, anxiety is felt so acutely that it does not serve an adaptive function. Anxiety becomes a psychological disorder when it starts to drastically disrupt an individual’s life.

Anxiety and other related disorders arise from a “triple-threat combination”: biological, psychological and specific vulnerabilities. Biological vulnerabilities indicate specific genetic and neurobiological factors that predispose an individual to developing these disorders. Psychological vulnerabilities refer to the influences our early experiences might have on our world-views. Additionally, life events cause us to direct our anxiety towards specific things, known as specific vulnerabilities. When all of these vulnerabilities are present and we encounter a stress-inducing situation, an anxiety disorder may present itself.

Generalized Anxiety Disorder
Though some amount of worry can be useful for us, we can usually put our worries aside to accomplish a task. People with generalized anxiety disorder (GAD) find it near impossible to shut off their intrusive thoughts related to minor and major incidents that have transpired in the past or that may (or may not) take place in the future. This activation of worries can result in myriad symptoms, including sleep difficulties, agitation, and fatigue. The worries that people with GAD have are usually unfounded and unlikely, so when the scenario they are anxious about does not occur, it only reinforces the act of worrying (i.e., I was worried about my daughter being at a party, but she arrived home fine so being vigilant helped get her home safe). This continuous worrying can be severely debilitating.

The DSM-5 or *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* is a diagnostic manual that helps mental health professional make psychiatric diagnoses. According to the manual, the individual must experience at least six months of elevated anxiety the majority of the day for many days at a time to meet criteria for GAD. Approximately, 5.7% of population has met the criteria for GAD at some point in life.

**Panic Disorder and Agoraphobia**

- **Panic disorder (PD)** refers to a psychiatric state in which an individual has strong panic attacks, involving a significant amount of worry about possible future attacks. To receive a panic disorder diagnosis, the DSM-5 states that a person must experience unexpected panic attacks and related anxiety for at least a month. This constant anxiety motivates the person to avoid numerous activities in order to prevent experiencing the physiological arousal that precedes a panic attack. The individual might also feel the urge to “escape” during an unexpected panic attack. Places that cannot be easily escaped might begin to feel unsafe. If the individual goes to extreme lengths to avoid going to such places, then he or she also has agoraphobia. Although there are cases where agoraphobia manifests without panic attacks, the two usually co-occur. Approximately 4.7% of the population has met criteria for PD or agoraphobia.

**Specific Phobia**

- **Specific phobias** are the most common psychological disorders in the U.S., affecting over 12.5% of the population. There are four main subtypes of specific phobias: (1) blood-injury-injection (BII); (2) situational (e.g., fear of planes, tight spaces, etc.); (3) natural environment (e.g., tornado, heights, water); (4) animal. All other types of specific phobias fall into a fifth “other” category. According to the DSM-5, one needs to have an illogical fear of a specific object or phenomenon, which disrupts daily functioning, in order to meet criteria for
specific phobia.

Social Anxiety Disorder (Social Phobia)

• A social anxiety disorder (SAD) is characterized by intense fear of social situations, which can cause worry and disrupt daily activities of living. To receive this diagnosis, an individual must experience such a high degree of anxiety when placed in social situations that they seek to avoid them entirely. Fear of being evaluated in social situations are very common in SAD - however, a slightly different diagnosis of SAD performance only is given when the anxiety and fear is restricted to performance-based circumstances (e.g., public speaking). Approximately, 12.1% of the population experiences social phobia at some point.

Posttraumatic Stress Disorder

• Posttraumatic stress disorder (PTSD) is marked by strong fears prompted by a previous traumatizing incident. An individual with PTSD may be afraid that another traumatic event might occur, which can lead to feelings of isolation and numbing. A person must either be exposed to the event (indirectly or directly), see the event happen to a loved one or close friend, or experience repeated or severe exposure to the event in order to be diagnosed with PTSD. Approximately, 6.8% of our population has experienced PTSD in their lifetime.

Obsessive Compulsive Disorder

• Obsessive-compulsive disorder (OCD) refersto a condition, in which an individual is strongly motivated to compulsively engage in certain behaviors in order to reduce anxiety (e.g., washing hands or cleaning repeatedly, etc.). To receive this diagnosis, the DSM-5 states that a person must experience irrational obsessive thoughts. Compulsive, or repetitive, behaviors may be carried out to counteract these irrational fears at least for a short time. The individual must experience excessive distress if they cannot carry out these behaviors. As such, engaging in obsessions or compulsions must account for a significant amount of time in a person's day (e.g., an hour per day). Approximately 1.6% of people have met criteria for OCD at some point in their life. A phenomenon that people with OCD often experience is thought-action fusion, in which these individuals believe that they may confuse thinking an intrusive thought with actually doing it, or that thinking about the act is as bad as actually doing it.

Treatments for Anxiety and Anxiety Related Disorders
• Many medications are helpful for most anxiety disorders (other than specific phobias), but their effects are not long-lasting, and symptoms return once the medication is stopped. Psychosocial treatments like *cognitive behavioral therapies* (CBT) might have more lasting effects than medication. Patients receiving CBT are taught to recognize and modify problematic perceptions and behaviors that worsen anxiety symptoms. Patients then practice applying the skills learned in therapy to real-life situations. Key aspects of CBT are gradual exposure to anxiety-inducing situations, challenging illogical beliefs, and developing new, less distressing beliefs.

### Difficult Terms

- Agoraphobia
- Anxiety
- Biological vulnerabilities
- Cognitive behavioral therapies
- Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5)
- Generalized anxiety disorder (GAD)
- Obsessive-compulsive disorder (OCD)
- Panic disorder
- Posttraumatic stress disorder (PTSD)
- Psychological disorder
- Psychological vulnerabilities
- SAD performance only
- Social anxiety disorder (SAD)
- Specific phobia
- Specific vulnerabilities
- Thought-action fusion

### Lecture Frameworks

#### Overview

An important theme to highlight throughout this module is that we all experience anxiety to some degree in various situations. Anxiety can be adaptive and push us to plan our future,
but when does it become maladaptive or a disorder? If you refer to this theme throughout the lesson, you will encourage students to look at people with anxiety disorders through a different, more relatable lens. Emphasize that some people feel anxiety so acutely and consistently that it no longer serves an adaptive function. Anxiety becomes a psychological disorder when it starts to drastically disrupt an individual’s life. You could illustrate this with examples, class discussions, and the activities provided below!

First Class Period:

- **Discussion/warm-up:**
  - Ask the students to think of a past situation that caused them a great deal of worry. What did they do to stop or distract themselves from the worry? Let the students generate some answers and encourage them to discuss the difference between adaptive and maladaptive anxiety. If no one mentions this point, then be sure to emphasize that some people cannot “turn off” their worry, such as in the case of generalized anxiety disorder (GAD).

- **Lecture:** Refer to the PowerPoint slides for the following:
  - Present the *triple vulnerability model* of anxiety disorders. A slide makes the connection between learning and anxiety (i.e., fear conditioning) using a video.
  - Present the information on the ways that anxiety can be learned (e.g., a fear of dogs after an attack). Here there is a video link to a video about Watson’s classic “Little Albert” study.

- **Lecture:** Refer to the PowerPoint slides for individual coverage of specific anxiety disorders.
  - Describe GAD and provide a brief example of someone with the disorder. Be sure to highlight the widespread, persistent nature of worry in GAD. For example, people with this disorder worry about everything on more days than not which leads to several impairing symptoms (e.g., sleep difficulties, irritability, etc.). Alternatively, if there is enough time, you could do a more detailed case presentation and activity of someone with GAD.

- **Activity:** Learning about Generalized Anxiety Disorder – A Case Presentation
  - The link to the 8-minute video for this activity is: https://www.youtube.com/watch?v=3mOkkCkajsl.
  - The video, group work and discussion will last about 25 minutes. See the Activities and Demonstrations section for more details.
• Discussion/warm-up

◦ Give the students an example of a near-miss car accident. Ask them what physical sensations they think people in the accident might experience. They may say things like accelerated heart rate, heavy breathing, etc. Is there a difference between adaptive and maladaptive anxiety in this example? Students may describe panic in the car accident example as adaptive because our body needed to prepare to take action (e.g., swerve, slam on brakes, etc.).

◦ In this example, the cue for panic symptoms was a near-miss car accident that caused a fight or flight response. Ask students how cues for a panic attack may be different?

• Lecture: Refer to the PowerPoint slides for the following:

◦ Discuss panic disorder and agoraphobia. Show students a video of Dan Harris discussing an on air panic attack. Dan Harris describes this as the “most embarrassing moment of his life”. Ask students what role irrational beliefs play in the development and maintenance of PD. Students should realize that panic symptoms are barely noticeable (e.g., he looks down, stutters, takes deep breaths), yet people who are experiencing panic feel like everyone knows what they are experiencing.

◦ Once students have an idea of what panic symptoms are like, ask them to consider what it would be like to have those sensations occur randomly with no apparent cause or cue. People with panic disorder often find their panic button turned on and they don’t know why.

◦ Go into detail about the role of learning in panic disorder and agoraphobia.

• Lecture: Refer to the PowerPoint slides for the following:

◦ Delve into features of specific phobias.

◦ Illustrates how learning and conditioning play a role in specific phobias.

Second Class Period:

• Discussion/warm-up

◦ Everyone has been socially anxious on some level at one point in his or her life. Ask students to imagine coming in late to class and the reactions they might have. Students will volunteer answers like, “It was embarrassing” or they might blush, etc. Ask them
why they felt that way and if they think this is a “normal” reaction? They may indicate that they violated a social norm (e.g., came in late when others arrived on time) and that the majority of people would experience the same feelings of embarrassment in the situation. Ask them to provide opinions on when they think these kinds reactions might become maladaptive.

- Lecture: Refer to the PowerPoint slides for the following:
  - Discuss *social anxiety disorder*. What types of situations do people who are socially anxious avoid? Students may say things like: fear of dates, fear of rejection, and fear of embarrassment). Though it is normal to dislike feeling embarrassed, people with SAD avoid situations even when there is a slight potential for embarrassment to occur (e.g., may avoid school *just in case* they might be late to class, etc.), which leads to impairment in functioning.
  - Expand upon *PTSD* and the role learning plays in the development of the disorder. To establish the link between adaptive and maladaptive anxiety, give an example of a soldier. In active combat, it would be great for this soldier to be hypervigilant for threats, react quickly, numb to emotional situations. However, the anxiety becomes maladaptive when the soldier is no longer in a threatening situation and experiences difficulty transitioning back to civilian life.

- Lecture: Refer to PowerPoint slides for the following:
  - Introduce *obsessive compulsive disorder* (OCD) and the role learning plays in the development of the disorder
  - Discussion: Play video clip of Howie Mandel, which documents a day in the life of someone with OCD. Below are the important timestamps that instructors may cut to depending on available time. After showing the video, ask students about symptoms of OCD that Howie experienced (i.e., obsessive worrying about germs, hand washing excessively) and the ways that he coped (e.g., therapy, medication, changing his environment).
    - 00:30 – 1:50: Howie begins his day and talks about the symptoms and impact of symptoms.
    - 3:40 - 4:20: Howie dropped his only anxiety pill on the ground that would bring him relief, but refused to take it because it was dirty.

- Activity: Anxiety-Based Disorders - Case Studies
Now would be a great time to conduct the next 15-20 min. class activity (see Activities and Demonstrations). Students have just digested a lot of information about various disorders – the activity will allow them to apply what they have learned and can also help you find out if any of them are having trouble understanding specific concepts.

• Lecture: Refer to the PowerPoint slides for the following:

  ◦ Give an overview of the different types of treatment for anxiety disorders.
  ◦ Provide an example of how a fear of dogs might be treated in therapy.
  ◦ Offer detail on how exposure therapy is used to treat anxiety.

Activities & Demonstrations

[Note: Many of the activities and demonstrations throughout the four modules in this unit can apply to more than one module. You can adapt the activities and use them as you see fit!]

Learning about Generalized Anxiety Disorder: In-Class Activity

Megan Renna, a psychology graduate student from the City University of New York, offers the following classroom activity, which allows students to step outside of the classroom and apply their burgeoning knowledge of psychological disorders to a case study. Though this activity is specific to generalized anxiety disorder (GAD), it can be adapted to any disorder.

Time
This activity will require at least 25 minutes of class time. The video is approximately 8 minutes long. Allow students to work in groups for 10 minutes. Leave 5-7 minutes for class discussion.

Materials
All you need is the video link and the prompts (see below) on a PowerPoint slide.

Directions

• Show this video of a patient with GAD to the class (approximately 8 minutes long): https://www.youtube.com/watch?v=3mOkkCkajsl
Randomly assign students into groups of four and give them 10 minutes to work in groups in order to think about and answer the following prompts on your PowerPoint slide:

- What symptoms did this patient exhibit?
- What types of things did they worry about?
- How did the patient's worry affect her relationships?
- How did the patient's disorder affect their work?
- How do you think this patient would be best treated for their disorder?
- What do you think the most debilitating part of the disorder is for the patient?
- Was there anything surprising about this patient?
- Are there any questions about things you feel like you need to know about the patient to properly diagnose and/or treat them?

Have a 5-7 minute guided class discussion, allowing the different groups to present their thoughts to the class.

Anxiety-Based Disorders - Case Studies: In-Class Activity

The purpose of this class activity is to help students identify the symptoms of anxiety-based disorders. The activity will be best suited after the instructor has covered the module on anxiety-related disorders and if the instructor injects a little creativity into the activity.

Time 15-20 minutes

Materials Copies of a handout with the four short studies listed below.

Directions

- Tell the students that they can put on their “psychologist hats” for the activity.
- This activity can be given to each student or the students can be divided into groups. Each student or group will receive a worksheet containing four short case presentations of people with varying forms of anxiety disorders. The “psychologists-in-training” will share with peers the diagnoses they gave to each of the patients described in the case studies. Feel free to come up with more examples in addition to the ones provided below.

- Case Study 1: Zelda is extremely concerned with cleanliness. In fact, before she retires...
at night, she goes through a cleaning ritual of her clothes and body that sometimes lasts for up to 2 hours. If she misses a step in the ritual or performs part of it imperfectly, she starts the ritual all over again.

○ Case Study 2: Alex periodically suffers from extremely high levels of anxiety but he cannot pinpoint the source or otherwise say why he is so anxious. He is terrified at times, his heart often races, he feels wobbly, and has difficulty concentrating.

○ Case Study 3: Karen worries excessively about developing a rare disease. When she meets friends or writes letters to her relatives, she is constantly discussing how she feels and expresses concern that even the most minor irregularities in the functioning of her body are symptoms of underlying diseases. She spends a good deal of time consulting doctors for a second opinion.

○ Case Study 4: Terry complains that he is experiencing recurrent episodes of lightheadedness, rapid breathing, and dizziness, especially as he attempts to leave his house. The symptoms have become so severe that, in fact, he is leaving his house less and less frequently. He now only goes the grocery store in the company of his sister. Once in the store, he checks immediately for the exits and windows.

• Note: The instructor can add more descriptions to increase the breadth of the disorders.

• Correct Answers:
  Case Study 1: Obsessive-Compulsive Disorder
  ; Case Study 2: Generalized Anxiety Disorder
  ; Case Study 3: Hypochondriasis
  ; Case Study 4: Agoraphobia.

Adapted from activity on the website: http://www.abacon.com/psychsite/tool_disorders.htm...

Outside Resources

American Psychological Association (APA)

National Institutes of Mental Health (NIMH)
Evidence-Based Teaching


Banyard’s article describes the utility of first-person accounts in helping undergraduate students comprehend the particular psychological challenges faced by people with psychological disorders. The findings of the study suggest that pairing case conceptualizations with a traditional textbook approach will result in more effective learning of symptoms as well as increased empathy when teaching undergraduates about psychological disorders.


This book is a compilation of first-person narratives offered by people who have had psychiatric or psychological disorders, adding a real life component to the usual textbook descriptions of symptoms. The instructor could utilize the whole book or specific excerpts in addition the traditional textbook. An additional perk is that it includes comments from therapists and relatives of those with the disorders.


Panic disorder and agoraphobia can often occur alone, comorbidly, and/or with the addition of panic attacks. Kessler et al.’s article provides useful prevalence statistics for these conditions and establishes that panic attacks alone can also lead to serious impairments and disruptions in functioning. Additionally, the article presents information on the severity and detrimental effects of agoraphobia. Although people with agoraphobia tend to seek treatment throughout their life, standardized 12-month treatment protocols are rare.

Researchers at Princeton University provide evidence that physical activity reorganizes the brain’s anxious response to stress, causing less interference with normal brain functioning. In a study of mice, Schoenfeld and colleagues found that running modulated neural activity after the experience of a stressor (i.e., exposure to cold water), such that the “running” mice showed a decreased response to stress as compared to sedentary mice. Additionally, the study helped researchers single out brain areas involved in anxiety regulation, which could hold implications for the comprehension and treatment of anxiety disorders in humans.

**Suggestions from the Society for Teaching's Introductory Psychology Primer**


POSSIBLE ASSESSMENTS (Out of Class). Students search the Internet for information regarding psychological disorders and evaluate the quality of that information. The assignment can be done in groups and includes a peer-evaluation component. For a full description of the activity, see the reference to Casteel (2003) below. (LO 4.4)

(In or Out of Class). Questions Regarding Controversial Cases: The student is presented with a series of descriptions of an abnormal behavior under changing circumstances (cultural setting, severity of the behavior, etc.) and then asked if the behavior is normal or not.

ACTIVITIES & TECHNIQUES (In Class)Discussion of Abnormality: Enter class and behave oddly in some way (e.g., talking to yourself, showing excessive irritability, breaking social convention by standing in an unusual place). Then ask students to identify what was unusual about your behavior and why it is unusual. Based upon the reasons and examples they give, you can identify students’ responses as reflecting various definitions of abnormality (i.e., distress, dysfunction, unusualness, dangerous, deviance). This activity is a fun way to get students
engaged with the material and how it applies to their lives.

Videos of Individuals with Disorders: Cengage has published a large online database of video clips across a range of disorders and topics relevant to abnormal psychology (http://clipsforclass.com/abnormal.php). This library is an economical (both monetarily and in terms of your time) way of demonstrating what these disorders are like.

RELEVANT TOP ARTICLES (Annotated Bibliography)


This article describes an exercise whereby students describe individuals they know or hypothetical examples of people with various mental disorders. The exercise led to improved retention on a post-test of information about the disorders relative to a lecture-only control.


This article provides a method for instructing introductory students about psychological disorders using an Internet based search exercise. The activity emphasizes improving students' ability to judge the quality of Internet resources while simultaneously investigating content.


In this article, the author provides a variety of background resources and commentary for understanding the social construction of mental illness. She also describes five pedagogical techniques to engage students with the material, including excellent discussion prompts. This article is a superb starting point for engaging your students in critical thinking regarding mental disorders.


This article describes an exercise where an interviewer and pseudo-client perform an interview for the class. Based upon the interview, the students must decide which among a class of disorders best describes the individual. The authors provide scripts for an anxiety disorder, a mood disorder, and a psychotic disorder.
Links to ToPIX Materials

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19981032/Psychological%20Disorders%20in%20the%20Classroom

In the News:
http://topix.teachpsych.org/w/page/26711727/Psychological%20Disorders%20in%20the%20News

Video/Audio:
http://topix.teachpsych.org/w/page/19981031/Psychological%20Disorders%20Video

Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation
This module has an associated PowerPoint presentation. Download it at http://nobaproject.com//images/shared/supplementEditions/000/000/141/Anxiety%20and-%20Related%20Disorders.ppt?1416598426.
The “Psychological Disorders” unit offers modules on anxiety and related disorders, mood disorders, schizophrenic disorders, and personality disorders.

By the end of the unit, students should know about the distinctions between the various disorders and how and when disorders “become” disorders. They should also have a general overview of the etiology, treatment, and risk factors of developing the disorder.

Note: It has long been true that studying psychological disorders has a way of making students of psychology self-conscious. Some begin looking for symptoms in themselves. Others volunteer personal information about struggles with disorders, occasionally inappropriately. Still others have a strong reaction to the idea of diagnosing disorders (which they feel—perhaps correctly—can stigmatize individuals). Instructors should simply be aware of these concerns and treat them sensitively. The emphasis on clinical aspects of psychology in this module are, in many ways, the best representation of the “core” of psychology as it is most commonly practiced in modern times.

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology's content domains (1.2)
  - Describe applications of psychology (1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
Abstract

Everyone feels down or euphoric from time to time, but this is different from having a mood disorder such as major depressive disorder or bipolar disorder. Mood disorders are extended periods of depressed, euphoric, or irritable moods that in combination with other symptoms cause the person significant distress and interfere with his or her daily life, often resulting in social and occupational difficulties. In this module, we describe major mood disorders, including their symptom presentations, general prevalence rates, and how and why the rates of these disorders tend to vary by age, gender, and race. In addition, biological and environmental risk factors that have been implicated in the development and course of mood disorders, such as heritability and stressful life events, are reviewed. Finally, we provide an overview of treatments for mood disorders, covering treatments with demonstrated effectiveness, as well as new treatment options showing promise.

Class Design Recommendations

The mood disorders module can be taught over a two-class period.

Please also see the Noba PowerPoint slides that complement this outline.

First class period (50-75 min):
• Provide characteristics of mood disorders
• Describe the common mood disorders
  ◦ Major depressive disorder
  ◦ Persistent depressive disorder
  ◦ Bipolar disorders
• Discuss prevalence rates of the various disorders
• Conduct class activity: Teaching about psychological disorders - Using a group interviewing and diagnostic approach

Second class period (50-75 min):

• Special topic: The role of sleep and social relationships in depression – Reciprocal effects
• Describe further risk factors for developing mood disorders
• Special topic: Suicide and mood disorders
• Activity: Suicide quiz
• Discuss effective treatments for mood disorders

Module Outline

What are Mood Disorders?

Mood Episodes

• A major depressive episode (MDE) is different from feeling sad or irritated from time-to-time. A MDE refers to feeling significantly distressed and or unable to engage in daily tasks for at least two weeks. During this state, the individual also experiences anhedonia, or the loss of ability to feel pleasure. According to the DSM-5, to meet criteria for MDE, the individual must experience five of the following nine symptoms (including one/both of the first two) for extensive amounts of time almost every day: (1) depressed mood; (2) diminished interest in pleasure in almost all activities; (3) significant weight loss or gain/
increase or decrease in appetite; (3) insomnia or **hypersomnia**; (4) **psychomotor irritation** or retardation; (5) feeling tired or a loss of energy; (6) fatigue or loss of energy; (7) feeling worthless or excessive inappropriate guilt; (8) difficulty concentrating; (9) repetitive thoughts about death, **suicidal ideation**, or suicide attempt.

- To be diagnosed with a manic or hypomanic episode, an individual must engage in persistent and sustained goal-directed behavior and experience euphoric or irritable mood for at least one week in mania and at least four days in hypomania. Three of the following symptoms must be present for euphoric mood, whereas four must be present for irritated mood: (1) inflated self-esteem or **grandiosity**; (2) increased goal-directed activity or psychomotor agitation; (3) reduced need for sleep; (4) racing thoughts or ideas; (5) distractibility; (6) increased talkativeness; (7) excessive engagement in risky activities.

**Major Mood Disorders: Major Depressive Disorder, Persistent Depressive Disorder and Bipolar Disorder**

- Major depressive disorder (MDD) involves one or more MDEs without any manic/hypomanic episodes. Persistent depressive disorder or dysthymia (PDD) involves feeling depressed most days for a minimum of two years. Additionally, the individual cannot be without symptoms for more than two months at a time. Two of the following symptoms are also required to meet PDD criteria: (1) increased or decrease appetite; (2) insomnia or hypersomnia; (3) low energy or fatigue; (4) decreased self-esteem; (5) poor concentration or difficulty in decision-making; (6) feelings of hopelessness.

- There are three major types of bipolar disorder. Bipolar I disorder (BD I), in the past referred to as manic-depression, requires a single (or recurring) manic episode – a depressive episode, although not required for the diagnosis, is usually present in BD I. Bipolar II disorder (BD II) requires a single (or recurring) hypomanic and depressive episode. The third type of bipolar disorder is cyclothymic, in which multiple alternating episodes of hypomania and depression are present and last for a minimum of two years.

**How Common Are Mood Disorders and Who Develops Mood Disorders?**

**Depressive Disorders**

- The lifetime prevalence for MDD is 16.6%. MDD can occur at any point in the life span,
however, it is most commonly diagnosed in the 20’s. Older adults are less likely to be diagnosed with this disorder than younger adults; the earlier the age of onset, the worse the outcome. For most, MDD is a recurrent disorder; approximately half of the people that experience a MDE have a second MDE. Women are more two to three times more likely to be diagnosed with MDD. The one-year prevalence rate for PDD is around 0.5%. Within the U.S., the PDD prevalence rate varies among ethnicities (e.g., European Americans have higher prevalence rates than African Americans and Hispanic Americans).

Bipolar Disorders

- The prevalence rate of bipolar disorders in the United States is approximately 4.4% with BD I constituting 1% of the cases. BD often occurs in conjunction with other psychiatric disorders such as anxiety or substance use. Similar to MDD, BD symptoms present in adolescence in at least half of the cases and are more severe for those who experience an earlier onset. Additionally, the diagnosis of BD is more likely in younger rather than older adults. Research has shown that rates of BD vary across ethnicities (e.g., African Americans tend to be under-diagnosed as compared to European Americans).

What are some of the Factors Implicated in the Development and Course of Mood Disorders?

Depressive Disorders

- Numerous studies indicate that MDD mostly occurs as a result of genetic effects, however, some environmental effects have also been shown to play a role. Stressful life events, increased activity in brain areas implicated in stress responses, early adversity (e.g., childhood abuse), chronic stress (e.g., poverty) and interpersonal factors (e.g., dissatisfaction with intimate relationships). Additionally, people who have a pessimistic attributional style are more vulnerable to developing MDD because they usually make internal rather than external, global rather than specific, and stable rather than unstable attributions to adverse experiences.

Bipolar Disorders

- Evidence suggests that there are biological, highly heritable causes of BD, but there is a lot of variability in how and when the disorder develops. Some research indicates that environmental factors, such as the loss of a close relationship, might serve as triggers for the genetic predisposition. People with BD are more likely to suffer depressive symptoms
after a life stressor. The social zeitgeber theory posits that stressors, which interrupt sleep or our internal biological clock, can trigger relapse. Notably, positive events can play a role in that people with BD are more likely to experience manic symptoms after achieving a desired goal.

What are some of the Well-Supported Treatments for Mood Disorders?

Depressive Disorders

• The earlier antidepressant medications, monoamine oxidase inhibitors (MAOIs) and tricyclics, were effective in treating depression, but had serious side effects such as: increased blood pressure and cardiotoxicity, respectively. The more recent antidepressant medications, like selective serotonin reuptake inhibitors (SSRIs) and serotonin and norepinephrine reuptake inhibitors (SNRIs) have fewer side effects. Specifically, they are less cardiotoxic and result in fewer cognitive impairments. Biological treatments (in order of efficacy) include electroconvulsive therapy (ECT), transcranial magnetic stimulation (TMS), and deep brain stimulation. These methods seem to be especially effective in individuals who have developed a resistance to medication. Psychosocial treatments that are supported by empirical research include cognitive, behavioral and interpersonal therapy. There is also some support for short-term psychodynamic therapy for depression.

Bipolar Disorders

• The most effective pharmaceutical treatment for BDs is lithium because SSRIs and SNRIs have the ability to induce mania or hypomania in BD patients. Unfortunately, lithium is not without its side effects (e.g., impaired cognitive function, increased weight, nausea, etc.). Lithium is often administered together with anticonvulsant medications. A psychosocial therapy designed to address symptoms of sleep impairment (see zeitgeber theory) that has some empirical support is interpersonal and social rhythm therapy (IPSRT).

Difficult Terms

Attributional style
Chronic stress
Early adversity
Mood Disorders

Grandiosity
Hypersomnia
Psychomotor agitation
Psychomotor retardation
Social zeitgeber
Suicidal ideation

Lecture Frameworks

Overview

Of all the various disorders in this unit, depression is probably one that students have been exposed to the most. Despite this, they may not have a nuanced understand of the types of depressive disorders (i.e., major depressive vs. persistent depressive disorder). Highlight these distinctions and then provide information on the types of bipolar disorders. After you have briefly covered the various mood disorders, use the activities and videos we have provided to bring these disorders to life.

Touch upon the prevalence rates, the most common age of diagnosis (i.e., the 20's) as well as gender differences.

First Class Period:

• Discussion/warm-up:
  ◦ Ask the students to generate symptoms of major depression disorder. Given the prevalence of major depression, students should be able to reflect and come up with numerous ideas. Then, consider playing the following 15-minute video (or parts of it) of a patient with major depression: https://www.youtube.com/watch?v=4YhpWZCdizc (linked to a slide in the PowerPoint).

• Lecture: Refer to the PowerPoint slides for the following:
  ◦ Provide detail on major depression and persistent depressive disorder.
  ◦ Delve into the types of bipolar disorders (i.e., bipolar I, bipolar II, cyclothymic disorders.)
  ◦ Provide the prevalence rates for each of the disorders covered in this module. Consider adding information on who develops the disorders (i.e., gender and culture differences).
• Lecture: Refer to the PowerPoint slides for the following:
  ◦ Discuss risk factors for mood disorders.
  ◦ Discuss treatments for depressive and bipolar disorders.

• Activity: Teaching about Psychological Disorders - Using a Group Interviewing and Diagnostic Approach
  ◦ This activity can take up to 35 minutes; however, it's a great way to involve your students with the lecture material they have just learned. See the Activities and Demonstrations section below for more information on the activity.
  ◦ In the PowerPoint slides, this activity is mentioned at the end of the first class period's lecture.

Second Class Period:

• Special Topic: The Role of Sleep and Social Relationships in Depression – Reciprocal Effects
  ◦ Recent research has demonstrated that there are reciprocal effects between major depression and shortened sleep. Sleeping six hours or less every night puts us at risk for developing major depression. In turn, this also increases the risk for decreased sleep. Sleep deprivation is a real concern, especially for young people, and it could even be a precursor for developing major depression and other mood disorders.
  ◦ Social isolation, much like reduced sleep, is also a risk factor for depression. Depression, in turn, increases the likelihood that individuals will isolate themselves. According to a nationally representative survey (McPherson et al., 2006; see Evidence-Based Teaching section), Americans have never felt as socially isolated as they do today. One-fourth of the respondents felt that they had no social support and about half reported that they had no close friends outside of their family. These numbers have seen a large increase from when this survey was last sent out in 1985. Ask the students why this might be? They are likely to generate some interesting ideas.
  ◦ Robert Putnam, an author and sociologist writes in his book, *Bowling Alone*, that for every 10 minutes of commuting time, there's about a 10% reduction in our social bonds. Meanwhile, this increase in social isolation has also led to an increase in mental illness, such as major depression. In fact, the prevalence of major depression is twice what it used to be approximately ten years ago.
- The lesson to be learned here is that in our increasingly busy lives with jobs, schools, commuting, and much more, we have to make time to connect and nurture our relationships with others, not just over the Internet but in person.

- **Special Topic: Suicide and Mood Disorders**

  - Though the module mentions the elevated risk of suicide in patients with mood disorders like depression, it does not offer any further information. We think, however, that this is an important issue to inform your students about.

  - *Discussion-warm-up*: Cite the annual rate of suicide in the United States, or other similar facts. For a list of such facts, visit the website: http://www.cdc.gov/violenceprevention/pdf/suicide_datasheet-a.pdf. Among American young adults aged 15-24, suicide is the third leading cause of death. Ask the students to generate risk factors of suicide? According to a study by Wilcox et al. (2010; see Evidenced Based Teaching section), lack of social support, childhood abuse, self-reported depressive symptoms and maternal depression are all risk factors for suicide. Are there any parallels between the risk factors for suicide and risk factors for depression?

- **Activity: Suicide Quiz**

  - The discussion of suicide and its relationship to mood disorders provides the perfect opportunity to administer the suicide quiz to your students (see Activities and Demonstrations). This quiz assesses beliefs and misconception that people have about suicide.

  - Keep in mind that suicide is a sensitive topic. It may be a good idea to preface the activity by informing the students that doing the exercise may invoke strong emotions and also have the on-campus wellness center (and perhaps other local agency) contact number(s) on hand.

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**Activities & Demonstrations**

Teaching about Psychological Disorders - Using a Group Interviewing and Diagnostic Approach: In-Class Activity
Tomcho & colleagues proposed an activity, in which an interviewer (the class instructor) interviews a “client” (a graduate student) who is “suffering” from a psychological disorder. They developed two scripts, one for anxiety disorders and the other for mood disorders. Thus, this activity can be utilized in two parts, for the current module as well as for the previous one on anxiety and related disorders.

Time 35 minutes

Materials List of disorders, script, a graduate student who is willing to play the part of a patient/client.

Directions

• Divide the class into groups of approximately 4-5 students. Prior to the activity, give the students a list of either the anxiety disorders or mood disorders (depending on which script you are using) to refer to during the interview. Also, the instructor can provide brief instructions on how to ask open-ended interview questions. The students watch the “client” and the “interviewer” act out the script. Then, allow the students to come up with questions to ask in their respective groups.

• Next, allow a few groups to ask one question of the pseudo-client. After three groups ask their questions, the groups can have another few minutes to discuss the client’s answers and either develop another question or offer potential diagnoses.

• After all groups have had an opportunity to ask one question of the client, students can indicate the diagnosis they are considering on their list of disorders. Once they have formulated responses, groups can volunteer and share their diagnoses with the rest of the class.

• This will create class discussion and allow students to learn discrepancies between various anxiety and mood disorders. Keep in mind that this activity can take about 35 minutes. For the script, please see the appendix in the article below:


Suicide Quiz: In-Class Activity

Hubbard and McIntosh have developed a quiz that allows the instructor to teach undergraduates about their own misconceptions of suicide as well as some factual
information about suicide that they may not otherwise know about.

**Time** 15-20 minutes

**Materials** Handouts of quiz (see appendix in the source article).

**Directions**

- The quiz has 39 items in it and the instructor can either administer it in its entirety, or use selected items - we recommend the latter option in the interest of time.
- After completing the quiz, students can be given an answer key or the instructor can review the items with the class and perhaps even poll student responses.
- To obtain the complete list of items in the quiz, see the appendix in the article below:


**Outside Resources**

**Books:** Recommended memoirs include *A Memoir of Madness* by William Styron (MDD); *Noonday Demon: An Atlas of Depression* by Andrew Solomon (MDD); and *An Unquiet Mind: A Memoir of Moods and Madness* by Kay Redfield (BD).

**Web:** Visit the Association for Behavioral and Cognitive Therapies to find a list of the recommended therapists and evidence-based treatments.  
http://www.abct.org

**Web:** Visit the Depression and Bipolar Support Alliance for educational information and social support options.  
http://www.dbsalliance.org/

**Evidence-Based Teaching**


According to McPherson and colleagues, Americans are more socially isolated today than they were a few decades ago. People reported a marked decrease in close social relationships outside of their immediate families. Career and job responsibilities, increased years in school and other related factors might have a lot to do with reduced efforts to form close or intimate social ties. The results of these data also have implications for mental illness, as lack of social support has been shown to be a risk factor for mental illnesses, such as depression.


Wilcox and colleagues followed just over a 1000 students throughout college and found that 12% had considered committing suicide at least once. Factors that precipitated suicidal thought or ideation were lack of social support, maternal depression, experiencing depressive symptoms, and early childhood trauma. The authors suggest that though the estimates from the study were grave, knowledge of these risk factors could serve as useful screening tools and help identify at-risk students.


Lowman and colleagues aim to bring psychological disorders to life and increase empathy in what they refer to as the “Lurking Assignment”. Students are assigned a psychological disorder or a diagnostic category and are asked to “lurk” on the Internet to find YouTube videos, blogs, and/or forums, in which patients with these disorders discuss their lives. The students follow these sites throughout the semester and assess their knowledge about the disorder from a patient's point of view. At the end of the term, students submit a paper based on their observations, have the opportunity to share what they've learned, and/or give presentations.


See activities and demonstrations for details on this article.


Does mental health have an influence on smoking? This article provides information on the relationship between smoking and depression and anxiety in teenagers. According to Patton et al., teenage participants in their study were twice as likely to be smokers if they had increased anxiety and depression. The researchers also report on gender differences; there was a consistent relationship between regular smoking and comorbid psychiatric diagnoses in girls. For boys, this was only true of the youngest group. Girls especially may be using smoking to self-treat their depressed mood and feelings of anxiety. Programs should target teenagers’ perceptions of the benefits of smoking in relation to their psychological or mental health.

**Suggestions from the Society for Teaching's Introductory Psychology Primer**


**POSSIBLE ASSESSMENTS (Out of Class).** Students search the Internet for information regarding psychological disorders and evaluate the quality of that information. The assignment can be done in groups and includes a peer-evaluation component. For a full description of the activity, see the reference to Casteel (2003) below. (LO 4.4)

**In or Out of Class.** Questions Regarding Controversial Cases: The student is presented with a series of descriptions of an abnormal behavior under changing circumstances (cultural setting, severity of the behavior, etc.) and then asked if the behavior is normal or not.

**ACTIVITIES & TECHNIQUES (In Class)**

Discussion of Abnormality: Enter class and behave oddly in some way (e.g., talking to yourself, showing excessive irritability, breaking social convention by standing in an unusual place). Then ask students to identify what was unusual about your behavior and why it is unusual.
Based upon the reasons and examples they give, you can identify students’ responses as reflecting various definitions of abnormality (i.e., distress, dysfunction, unusualness, dangerous, deviance). This activity is a fun way to get students engaged with the material and how it applies to their lives.

Videos of Individuals with Disorders: Cengage has published a large online database of video clips across a range of disorders and topics relevant to abnormal psychology (http://clipsforclass.com/abnormal.php). This library is an economical (both monetarily and in terms of your time) way of demonstrating what these disorders are like.

**RELEVANT TOP ARTICLES (Annotated Bibliography)**


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This article describes an exercise where an interviewer and pseudo-client perform an interview for the class. Based upon the interview, the students must decide which among a class of disorders best describes the individual. The authors provide scripts for an anxiety disorder, a mood disorder, and a psychotic disorder.

Links to ToPIX Materials

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19981032/Psychological%20Disorders%20in%20the%20Classroom

Books & Films:
http://topix.teachpsych.org/w/page/39234720/Disorders

In the News:
http://topix.teachpsych.org/w/page/26711727/Psychological%20Disorders%20in%20the%20News

Video/Audio:
http://topix.teachpsych.org/w/page/19981031/Psychological%20Disorders%20Video

Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes
Mood Disorders

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com/images/shared/supplement_editions/000/000/142/Mood%20Disorders.ppt?1416599007.
The “Psychological Disorders” unit offers modules on anxiety and related disorders, mood disorders, schizophrenic disorders, and personality disorders.

By the end of the unit, students should know about the distinctions between the various disorders and how and when disorders “become” disorders. They should also have a general overview of the etiology, treatment, and risk factors of developing the disorder.

Note: It has long been true that studying psychological disorders has a way of making students of psychology self-conscious. Some begin looking for symptoms in themselves. Others volunteer personal information about struggles with disorders, occasionally inappropriately. Still others have a strong reaction to the idea of diagnosing disorders (which they feel—perhaps correctly—can stigmatize individuals). Instructors should simply be aware of these concerns and treat them sensitively. The emphasis on clinical aspects of psychology in this module are, in many ways, the best representation of the “core” of psychology as it is most commonly practiced in modern times.

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology’s content domains (1.2)
  - Describe applications of psychology(1.3)
  - Use scientific reasoning to interpret psychological phenomena (2.1)
Demonstrate psychology information literacy (2.2)
Build and enhance interpersonal relationships (3.2)
Adopt values that build community at local, national, and global levels (3.3)

Content-Specific Learning Objectives: Schizophrenia Spectrum Disorders

- Describe the signs and symptoms of schizophrenia and related psychotic disorders.
- Describe the most well-replicated cognitive and neurobiological changes associated with schizophrenia.
- Describe the potential risk factors for the development of schizophrenia.
- Describe the controversies associated with “clinical high risk” approaches to identifying individuals at risk for the development of schizophrenia.
- Describe the treatments that work for some of the symptoms of schizophrenia.

Abstract

Schizophrenia and the other psychotic disorders are some of the most impairing forms of psychopathology, frequently associated with a profound negative effect on the individual's educational, occupational, and social function. Sadly, these disorders often manifest right at the time of transition from adolescence to adulthood, just as young people should be evolving into independent young adults. The spectrum of psychotic disorders includes schizophrenia, schizoaffective disorder, delusional disorder, schizotypal personality disorder, schizophreniform disorder, brief psychotic disorder, as well as psychosis associated with substance use or medical conditions. In this module, we summarize the primary clinical features of these disorders, describe the known cognitive and neurobiological changes associated with schizophrenia, describe potential risk factors and/or causes for the development of schizophrenia, and describe currently available treatments for schizophrenia.

Class Design Recommendations

Schizophrenia spectrum disorders is a great module to teach. We truly think it has the potential to be an extremely memorable lesson and also convey important issues such as the stigma and its impact on people with the illness. That’s why we recommend you give this topic two
periods in order to give yourself the opportunity to incorporate the activity and demonstration as well as the recommended video and special topic.

Please also see the Noba PowerPoint slides that complement this outline.

First class period (50-75 min):

- Conduct class activity: Quiz – How much do you know about schizophrenia?
- Discuss the phenomenology of schizophrenia and related psychotic disorders
- Demonstration: The Disordered Monologue – An Illustration of the Symptoms of Schizophrenia
- Explain the cognitive neuroscience behind schizophrenia

Second class period (50-75 min):

- Describe risk factors for developing schizophrenia
- Show Elyn Saks’ TED talk
- Review treatments for schizophrenia
- Special topic: Is stigma a barrier to accessing therapeutic services for mental illnesses?

Module Outline

The Phenomenology of Schizophrenia and Related Psychotic Disorders

- At some point in our lives, it is likely that we have encountered disheveled, seemingly paranoid individuals, talking to themselves or yelling at thin air. There is a chance that some of these individuals have schizophrenia. Psychotic disorders like schizophrenia can involve various symptoms, such as: delusions, hallucinations, disorganized speech, and behavior, abnormal motor behavior (including catatonia) and negative symptoms like 
  ahedonia/amotivation and blunted affect/reduced speech.

- The most common types of delusions are persecutory, whereby individuals might think that others are trying to harm or plot against them. Grandiose delusions refer to when
people believe they have special abilities. **Hallucinations** are auditory, visual, olfactory, gustatory or somatic perceptual experiences that occur without any external stimulation. Usually, hallucinations have a negative voice (e.g., “you are a loser”). People with schizophrenia also display **disorganized speech**, or speech/responses that lack logical flow. **Disorganized behavior** refers to a style of behaving or conducting oneself in a manner considered strange by the rest of society. Abnormal motor behavior can include **catatonia**, which refers to a lack of reaction to external events.

- Negative symptoms refer to an absence of behaviors or responses that we normally see in others, but are absent in schizophrenics. For example, **anhedonia** or **amotivation** refer to a general lack of interest or motivation to engage in one’s social environment or pleasurable activities. Notably, neither of these two symptoms reflects the lack of ability to experience pleasure in pleasant activities, rather a lack of drive to pursue positive outcomes. **Flat affect** and **alogia** (reduced speech) are symptoms that refer to the inability to show affect through facial expressions, gestures, or speech intonation.

- There are many types of psychotic disorders, schizophrenia being the most common, however the book also provides a table with other psychotic disorders including schizophreniform disorder, schizoaffective disorder, delusional disorder, and brief psychotic disorder (see table 1 for more details).

### The Cognitive Neuroscience of Schizophrenia

- In addition to the problems mentioned above, schizophrenia also affects **functional capacity**, or the ability to care for oneself physically (e.g., bathing) and emotionally (e.g., engaging in social relationships). Other cognitive deficits can include complications with **episodic** and **working memory**, the ability to learn and recall new information and the ability to maintain information in memory for a short period of time, respectively. Additionally, **processing speed** is slower in schizophrenics than healthy people. These cognitive deficits are usually present prior to onset and are even found in relatives of schizophrenics, albeit to a milder degree. Some schizophrenics also have social cognitive impairments, such as the ability to read facial expressions.

- Neuroimaging tools such as **magnetic resonance imaging** and **positron emission topography** allows scientists to understand the brain mechanisms and cognitive impairments in schizophrenics. For instance, research findings demonstrate that impairments in working and episodic memory are related to dysfunction in the dorsolateral prefrontal cortex (DLPFC) among people with schizophrenia. Additionally, imaging tools...
demonstrate that people with schizophrenia have overall reduced brain volume, and consuming drugs (e.g., marijuana, alcohol) might be responsible for these structural changes. As milder forms of these neurobiological changes are also seen in relatives of people with schizophrenia, there may be a genetic component to the illness.

**Risk Factors for Developing Schizophrenia**

- Schizophrenia is a variable disorder; therefore, it is likely that the genetic risk for developing schizophrenia is due to the summation of various genes acting together rather than a single “schizophrenia gene”. Importantly, some of the genes related to schizophrenia are also associated with other psychological disorders, including depression and autism.

- Numerous environmental factors have also been implicated in the development of schizophrenia. Complications in pregnancy (e.g., infection, heightened stress) and at birth (e.g., lack of oxygen) are related to increased risk. Children who grow up in urban environments or are born to older fathers are also at an elevated risk level. Due to the broad nature of these risk factors, most people who encounter them do not develop schizophrenia; however, they do give us hints about **neurodevelopmental** factors that may leave someone vulnerable.

- A significant area of research in psychotic disorders has been to identify those that display recently developed milder symptoms of psychosis and experience distress related to those symptoms. 35% of these clinically at-risk people develop a psychotic disorder when followed over time. To identify these people, the DSM-5 added the “Attenuated Psychotic Syndrome” to the manual, which generated a lot of controversy. Some think that adding the category would create mental disorders where there are none, while others believe that adding the category will incite research and help reduce the development of full-blown symptoms.

**Treatment for Schizophrenia**

- Currently, the first defense against schizophrenia is the use of antipsychotic drugs: typical and atypical. Typical drugs block the D2 type **dopamine** receptor (i.e., a neurotransmitter that regulates the other neurotransmitters) and act to reduce hallucinations, delusions, and disorganized speech. Atypical drugs act through a number of mechanisms and have more or less of the same impact on symptoms, but with fewer motor side effects. However, atypical drugs do have other side effects, such as increased risk of diabetes, heart disease and death. Both atypical and typical drugs do not work to enhance cognitive function and
currently there are no other medications on the market that do so. However, an intervention, known as the Cognitive Enhancement Therapy (CET) has been shown to improve cognitive, social cognitive, and functional symptoms in young people with schizophrenia.

**Difficult Terms**

Alogia
Anhedonia/amotivation
Catatonia
Delusions
Disorganized behavior
Disorganized speech
Dopamine
Episodic memory
Flat affect
Functional capacity
Hallucinations
Magnetic Resonance Imaging
Neurodevelopmental
Positron emission tomography
Processing speed
Working memory

**Lecture Frameworks**

**Overview**

We've all seen that person who is behaving in a strange manner, talking incomprehensibly to themselves on a subway or street, or yelling at thin air. In fact, it is likely that many of us have encountered someone with schizophrenia even if we were unaware of it. At the same time, schizophrenia remains one of the most misunderstood mental illnesses. In accordance with the APA learning objectives, we think that it is important to engender awareness of the stigma surrounding schizophrenia, to put a human face on the people with the disorder, to encourage
acceptance, and dispel some of the stereotypes surrounding the disease. The following lecture will emphasize the aforementioned in addition to providing students with information on the phenomenology of schizophrenia and related disorders, delve into the cognitive neuroscience behind it, describe risk factors for schizophrenia and review treatments currently used to treat it.

First Class Period:

• Activity: Quiz - How Much Do You Know About Schizophrenia?
  ○ A great way to introduce the topic is to administer this quiz (see Activities and Demonstrations). This 15-20 minute activity is sure to highlight some of the misconceptions and stigma surrounding schizophrenia and related disorders.

• Lecture: Refer to the PowerPoint slides for the following:
  ○ Introduce schizophrenia and dives into its phenomenology.
  ○ Provide overall descriptions of delusions and hallucinations as well as information on the specific types.
  ○ Explain two key positive symptoms of schizophrenia – disorganized speech and behavior – and dive into some of the negative symptoms of the disorder.

• Demonstration: The Disordered Monologue – An Illustration of the Symptoms of Schizophrenia
  ○ This powerful, short demonstration exemplifies a verbal encounter of a person with schizophrenia and illustrates disturbances in thought, speech, and affect (i.e., neologism, delusions, etc.). Including a class discussion, this demo should take 10-15 minutes. See Activities and Demonstrations for more details.

• Lecture: Refer to the PowerPoint slides for the following:
  ○ Provide information on the cognitive neuroscience of schizophrenia

Second Class Period:

• Lecture: Refer to the PowerPoint slides for the following:
- Describe the risk factors of schizophrenia

- Discussion-warm-up:
  - After talking about the risk factors, we recommend showing a video of Elyn Saks’ 15-minute TED talk: http://www.ted.com/talks/elyn_saks_seeing_mental_illness. Elyn is an accomplished professor of law, psychology and psychiatry. Elyn also has schizophrenia. Her talk is so poignant that it will warrant a discussion after the students watch it.
  - NOTE: This clip breaks up the discussion and provides a nice little warm up before diving into types of treatment, but will also fit nicely after having talked about the symptoms and risk factors of schizophrenia.

- Lecture: Refer to the PowerPoint slides for the following:
  - Offer information about two psychopharmacological treatments of schizophrenia: atypical and typical drugs.
  - Provide information on a psychological intervention shown to benefit people with schizophrenia.

- Special Topic: Is Stigma a Barrier to Accessing Therapeutic Services for Mental Illnesses?
  - If you have time left in the class, diving into this topic after discussing treatments for schizophrenia will be a fitting transition and a great way to end the class.
  - An expert on stigma and illness, Richard Corrigan (1998; see evidence-based teaching section) offers a lot of useful information in his article about how medical professionals in the 1960's viewed mental illnesses as “made up” afflictions, how a person with diabetes can be treated very differently from a person with schizophrenia (even though both illnesses are chronic and biological in nature) by family, friends, and even medical professionals. Give students an opportunity to generate ideas as to why this differential treatment might occur for one chronic illness (e.g., diabetes), but not another (e.g., schizophrenia).
  - It is likely that some students will mention stigma or embarrassment as answers. According to Corrigan, people are generally uncomfortable with being labeled and often avoid medical care because they don’t want to be perceived as mentally ill by their social network. This stigma can interfere with treatment seeking in two ways: It lowers self-esteem and leads to missed social opportunities. Ask students how they think scientists, clinicians, laypeople, and even society as whole can encourage people with schizophrenia to seek treatment.
○ Corrigan's work promotes the development of anti-stigma programs to encourage care-seeking. See article for more details.

Activities & Demonstrations

Quiz - How Much Do You Know About Schizophrenia?: In-Class Activity

This activity is adapted from a teacher's manual from the Schizophrenia Society of Canada. The link to the manual can be found here: http://www.schizophrenia.ca/docs/Teachers_Manual.p...

Time 15-20 minutes

Materials You will need the 10 true or false questions and their explanations below. Administer the quiz by putting up questions on PowerPoint and having students answer with clickers (or by raising their hands).

Directions

• You could present the T/F questions one-by-one, wait for the students to provide their answers and then go over the correct explanation after each statement. Alternatively, you could present all the T/F statements, allow students to respond, and review all the answers at the end.

• Based on your preferences, leave 5-10 minutes for a discussion either throughout the activity, or for when the activity is complete.

Quiz

1. Schizophrenia is a rare illness.
2. Schizophrenia is a brain disease.
4. More males than females develop schizophrenia.
5. Schizophrenia is caused by poor parenting.
6. Schizophrenia is caused by street drugs.

7. People who have schizophrenia are usually violent and dangerous.

8. People with schizophrenia have multiple or split personalities.

9. Schizophrenia can be successfully treated.

10. People with schizophrenia are developmentally disabled, i.e., they have a low level of intelligence.

Answers

1. Schizophrenia is a rare illness. [False]. Schizophrenia strikes one in one hundred people, worldwide.

2. Schizophrenia is a brain disease. [True]. Brain imaging techniques (MRI and PET) show there is a change in structure and functioning of the brain.

3. Schizophrenia generally strikes older people. [False]. The age of onset is usually between 15 and 25 years of age.

4. More males than females develop schizophrenia. [False]. Males tend to contract the disease at a younger age than females but the illness is distributed equally between the two sexes.

5. Schizophrenia is caused by poor parenting or an unhappy childhood. [False]. For much of the twentieth century, bad mothering or poor family interactions were cited as causes. Neither of these theories has any validity. Schizophrenia is a neurobiological disease involving brain changes. We do not know the exact cause of the illness, but modern research tools are helping to bring the various pieces of the puzzle together. We do know that it is an organic (physical, biological) disease and is the fault of no one.

6. Schizophrenia is caused by street drugs. [False]. Schizophrenia is not caused by street drugs. Some researchers believe, however, that street drugs can precipitate schizophrenia in an individual who has a predisposition to develop the disease. Street drugs can, however, make the illness worse for someone who already has the disease.

7. People who have schizophrenia are usually violent and dangerous. [False]. People who have schizophrenia tend to be vulnerable, fragile people. If violent, the violence is most often directed towards themselves: suicide.

8. People with schizophrenia have multiple or split personalities. [False]. People with schizophrenia are split from reality, rather than having a multiple or split personality.

9. Schizophrenia can be successfully treated. [True]. Schizophrenia cannot be cured, but the symptoms can be treated.
10. People with schizophrenia are developmentally disabled, i.e., they have a low level of intelligence. [False]. People with schizophrenia have a normal or above-normal intelligence.

The Disordered Monologue – An Illustration of the Symptoms of Schizophrenia: In-Class Demonstration

Symptoms of schizophrenia may be difficult for students to understand. This demonstration, offered by Osberg (1992), is a way to exemplify a verbal encounter with a person who has schizophrenia, illustrating some common disturbances in speech, affect, and behavior.

Time 15 minutes: 5 minutes for monologue, 10 minutes for discussion.

Materials The monologue is provided below. It might be helpful to have the discussion prompts on a PowerPoint slide after you “perform” the monologue.

Directions

- This demo may require a pinch of theatrics! The idea is to spontaneously launch into a monologue, which depicts the thought patterns and speech of someone with schizophrenia.
- The author of this demonstration advises that the monologue below will be best delivered after the instructor has practiced it a few times and can perform it without reading off a screen or notes.
- Monologue: “Okay class, we've finished our discussion of mood disorders. Before I go on I'd like to tell you about some personal experiences I've been having lately. You see, I've been involved in highly abstract type of contract which I might try to distract from your gaze if it were a new craze but the sun god has put me into it the planet of the lost star is before you now and so you'd better not try to be as if you were one with him because no one is one with him anyone who tries to be one with him always fails because one and one makes three and that is the word for thee which must be like the tiger after his prey and the zommon is not common bausel it is a zomimon's zommon. But really class, what do you think about what I'm thinking about right now? You can hear my thoughts can't you? I'm thinking I'm crazy and I know you put that thought in my mind. You put that thought there! Or could it be that the dentist did as I thought? She did! I thought she put that radio transmitter into my brain when I had the Novocain! She's making me think this way and
she's stealing my thoughts!"

- After the monologue, explain that this demonstration was meant to portray the speech and thought pattern of someone with schizophrenia. You can ask the students to give their reactions, which can lead into a discussion. Some topics to discuss with the class may revolve around:
- How do you [the students] think that people with schizophrenia might react to others’ perceptions of them?
- Do you think that the seemingly bizarre and meaningless sentences uttered by schizophrenics are meaningless to them?
- What might be especially frustrating for someone with schizophrenia when trying to communicate with others?
- When discussing schizophrenia symptoms in detail, the instructor will be able to refer back to the demo as it contains common disturbances in thought, speech, and affect, for example:
  - Loose associations (jumping from topic to unrelated topic)
  - Neologisms (creating new words)
  - Perseveration (repeatedly returning to the same topic)
  - Clanging (rhyming and punning).
  - Thought insertion (feeling people are inserting thoughts into one's mind), thought withdrawal (believing someone is removing one's thoughts)
  - Delusions of being controlled (by some external force).

Note: Osberg mentions that all the students in his class recommended that he use the demonstration with future classes and no student (thus far) reacted negatively to the demonstration. However, just in case he advises to have contact information for local mental health services at hand.


Outside Resources
Evidence-Based Teaching


Matteo and colleagues conducted a study in which they evaluated the utility of three interventions (i.e., education, video, and contact) in reducing introductory psychology students’ stigmatizing perceptions of mental illness patients. They found that students were significantly more likely to be comfortable around these individuals after meeting three people from the local community who had mental illnesses. These results underscore the importance of bringing real-life examples to the undergraduate classroom.

Many people are exposed to a person's experience of a mental illness through various forms of media (e.g., movies, TV shows, etc.). However, these depictions are often misrepresentative and can generate societal stigma, causing people living with mental illnesses to experience disdain and differential treatment. In turn, these experiences can lead to lowered self-esteem, lost opportunities in various aspects of life as well as a fear of being unable to attain one's goals. The social cognitive theory has been used to understand the stereotyping that leads to stigma and can also be used to develop a cognitive behavioral therapy model. The model can be applied to: 1) people who hide their mental illnesses for fear of being shamed; 2) people who are characterized as mentally ill; and 3) the general public or society, which continues to fall prey to distorted information and stigma-inducing myths.


See Activities and Demonstration Section for more details.

**Suggestions from the Society for Teaching's Introductory Psychology Primer**


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In this article, the author provides a variety of background resources and commentary for understanding the social construction of mental illness. She also describes five pedagogical techniques to engage students with the material, including excellent discussion prompts. This article is a superb starting point for engaging your students in critical thinking regarding mental
disorders.


This article describes an exercise where an interviewer and pseudo-client perform an interview for the class. Based upon the interview, the students must decide which among a class of disorders best describes the individual. The authors provide scripts for an anxiety disorder, a mood disorder, and a psychotic disorder.

### Links to ToPIX Materials

**Activities, demonstrations, handouts, etc.:**
http://topix.teachpsych.org/w/page/19981032/Psychological%20Disorders%20in%20the%20Classroom

**Books & Films:**
http://topix.teachpsych.org/w/page/39234720/Disorders

**In the News:**
http://topix.teachpsych.org/w/page/26711727/Psychological%20Disorders%20in%20the%20News

**Video/Audio:**
http://topix.teachpsych.org/w/page/19981031/Psychological%20Disorders%20Video

### Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com/images/shared/supplement_editions/000/000/143/Schizophrenia%20Spectrum%20Disorders.ppt?1416603061.
Chapter 14: Therapy
The Noba Therapies unit contains two modules: Therapeutic Orientations and Psychopharmacology.

*Therapeutic Orientations* delivers information on different types of psychological therapies, including historical context, specific therapy techniques, advantages and disadvantages, and empirical support behind each therapy.

### Learning Objectives

- **Relevant APA Learning Objectives (Version 2.0)**
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Describe applications of psychology (1.3)
  - Apply ethical standards to evaluate psychological science and practice (3.1)
  - Apply psychological content and skills to career goals (5.1)

- **Content-Specific Learning Objectives: Therapeutic Orientations**
  - Become familiar with the most widely practiced approaches to psychotherapy.
  - For each therapeutic approach, consider: history, goals, key techniques, and empirical support.
  - Consider the impact of emerging treatment strategies in mental health.
Abstract

In the past century, a number of psychotherapeutic orientations have gained popularity for treating mental illnesses. This module outlines some of the best-known therapeutic approaches and explains the history, techniques, advantages, and disadvantages associated with each. The most effective modern approach is cognitive behavioral therapy (CBT). We also discuss psychoanalytic therapy, person-centered therapy, and mindfulness-based approaches. Drug therapy and emerging new treatment strategies will also be briefly explored.

Class Design Recommendations

The two modules in this unit can be spread over two class periods or if need be compressed into one. Please also refer to the Noba PowerPoint slides that complement this outline.

One class period (50-75 min)

- Special topic: Is stigma a barrier to accessing therapeutic services for mental illnesses?
- Briefly introduce of the utility of therapies
- Discuss psychoanalysis and psychodynamic therapy
- Conduct the class activity: Illustrating the concept of transference
- Talk about humanistic and human-centered therapy
- Describe cognitive behavioral therapy
- Conduct the class activity: The way we think – examples of cognitive behavioral therapy techniques
- Introduce acceptance and mindfulness-based therapies
- Discuss other treatments (e.g., internet and mobile-delivered therapies, integrative and eclectic psychotherapy)
- Special topic: Animal-assisted therapy.

Module Outline
Introduction

Almost half of all Americans experience mental illness at some point in their lives. To treat these mental illnesses, there exist a range of therapies, of which CBT proves most effective. This module contains information on various treatment approaches, including advantages, disadvantages, and whether or not the treatments are empirically supported.

Psychoanalysis and Psychodynamic Therapy

- **Psychoanalysis** emphasizes that mental problems arise from unconscious desires and motivations and early childhood experiences. Psychologists work with the patient to unearth early memories, which requires meeting regularly for many years.

- **History.** Sigmund Freud, the founder of psychoanalysis, suggested that psychiatric problems are a result of the push-and-pull of different parts of the mind: the id, the superego, and ego. Id signifies our unconscious, selfish urges; the superego, the partially conscious part of the mind, stores morals and societal norms; the ego, also partially conscious, mediates the tension between id and superego. **Psychotherapy** aims to resolve internal turmoil by bring unconscious conflicts into awareness. **Psychodynamic therapy** has replaced psychoanalysis, as the former is shorter and focuses on resolving psychological distress instead of trying to change the patient entirely.

- **Techniques.** **Free association** is where the patient expresses their every thought. Other techniques involve discussing the patients' early childhood relationships and dreams. Psychoanalytic and psychodynamic clinicians take on a “receptive role”, which involves interpreting patient thoughts and behavior based on experience and theory. According to Freud, patients can project their feelings for others onto the therapist in a process called transference. Conversely, therapists can project their emotions onto patients in countertransference.

- **Advantages and Disadvantages.** The biggest disadvantage is the lack of empirical support for psychoanalysis and related therapies. The cost of treatment is also very high as it can last many years though some patients and therapists find the detailed analysis rewarding.

Humanistic and Person-Centered Therapy

- **Person-centered therapy** (PCT), or humanistic therapy, refers to a type of therapy that aims to create an encouraging environment for self-exploration.

- **History.** Developed by a psychologist named Carl Rogers, PCT promotes the idea that
patients can change with the help of supportive therapists who foster self-understanding. Rogers believed that the therapist-patient relationship should be sincere and egalitarian, and that therapists should be non-judgmental and highly empathetic.

- **Techniques.** Like psychoanalysis, PCT is largely unstructured. Unlike psychoanalysis, the therapist does not try to change the person’s thoughts or behaviors directly, but instead offers a safe, warm, judgment-free place for the patient to undergo personal growth. This is known as **unconditional positive regard**, which is a central tent of PCT.

- **Advantages and Disadvantages.** A key advantage of PCT is the supportive, empathetic, non-judgmental relationship between patient and therapist. The main disadvantage is that the effectiveness of PCT is unclear due to its flexible non-directed approach.

### Cognitive Behavioral Therapy

- **Cognitive Behavioral Therapy** confronts psychological distress by addressing underlying cognitions and behaviors. CBT deals with specific and current problems with a goal-oriented approach. CBT has been highly effective for a broad range of mental illnesses.

- **History.** The founders of CBT are Dr. Aaron T. Beck and Albert Ellis. Beck observed that automatic thoughts were the product of beliefs about oneself, the world, and the future. The first phase of Beck's therapy identifies and challenges automatic thoughts. The second phase goes deeper and examines the sources of these automatic thoughts.

- **Pioneers.** The premise of CBT is that thoughts influence emotions and behaviors. The key to CBT is unlocking a patient's hidden assumptions, perceptions, and beliefs. In Ellis's model patients systematically examine their underlying beliefs.

- **Techniques.** CBT addresses both maladaptive thoughts and behaviors. Unhelpful thoughts are identified, examined, and replaced by more adaptive thoughts. Maladaptive behaviors are similarly challenged, by various techniques, including **exposure therapy** where patients unlearn irrational fears by consciously and repeatedly confronting an anxiety-provoking situation.

- **Advantages and Disadvantages.** CBT, unlike other modalities, has been empirically shown to be effective. The interventions are shorter and thus more affordable. The process, however, requires a lot of active participation from the patient both in and out of session.

### Acceptance and Mindfulness-Based Approaches

- **Mindfulness** emphasizes non-judgmental awareness and acceptance. The two components of this process are self-regulation of attention and a focus on the present
moment.

- **Techniques.** Several mindfulness-based therapies have emerged. Some utilize yoga and meditation while others combine cognitive therapies with mindfulness (i.e., mindfulness based cognitive therapy, dialectical behavioral therapy). Another emerging approach is acceptance and commitment therapy, which encourages patients to be detached observers of their own thoughts.

- **Advantages and Disadvantages.** MBT is both acceptable and accessible to patients and has far reach within popular culture. However, the scientific community is still unsure about its effectiveness.

- **Emerging Treatment Strategies.** Technology is improving accessibility and allowing therapists to effectively treat more patients by utilizing smart phones and computer technology.

### Pharmacological Treatments

- General doctors can prescribe psychotropic drugs, which in part, explains their common use. Although they can be an important part of treatment, there are still many unanswered questions about their impact on the brain.

### Integrative and Eclectic Psychotherapy.

- Many therapists incorporate techniques from more than one approach in their practice.

### Conclusion

- Many therapeutic approaches, both traditional and non-traditional, are being utilized. Among them, CBT has the most empirical support. Technological advances are improving the delivery and accessibility of therapy.

### Difficult Terms

- Acceptance and commitment therapy
- Automatic Thoughts
- Cognitive Behavioral Therapy
- Dialectical behavioral therapy
• Exposure therapy
• Free association
• Integrative or eclectic psychotherapy
• Mindfulness
• Mindfulness-Based Therapies
• Person-centered therapy
• Psychodynamic therapy
• Unconditional positive regard

Lecture Frameworks

Overview
In teaching this module, the instructor has the opportunity to offer some key deliverables to the students, punctuated with memorable activities and special topics. We think an especially critical topic to touch upon is the stigma surrounding seeking psychological help – this will generate awareness about one important treatment barrier. Additionally, it’s important that we help students become better consumers of the information they will encounter outside the classroom. Evaluating treatment efficacy is a great theme to emphasize throughout this lesson. See Layard and Clark (2014) in Evidence-Based Teaching section for more information. One particular therapy to focus on is cognitive behavioral therapy as it is efficacious in treating a variety of psychological disorders, including: obsessive-compulsive disorder, social phobias, major-depressive disorder, and panic disorder.

One Class Period:

• Discussion/warm-up
  ◦ Give students 5 minutes to think of movie or TV show examples that depict different therapies or a therapist and/or therapist-client interaction. Were these portrayals positive or negative? How and in what way? Then, ask students to give their thoughts on seeking psychological treatment. Ask them to consider if their friend were seeking treatment for social anxiety, would the friend feel comfortable sharing this information?
Why or why not?

- Special Topic: Is Stigma a Barrier to Accessing Therapeutic Services for Mental Illnesses?
  - An expert on stigma and illness, Richard Corrigan (2004; see Evidence-Based Teaching Section) offers a lot of useful information about how stigma becomes a barrier for individuals that are in dire need of mental services. He proposes that this happens in one of two ways:
    - Firstly, stigma diminishes people's self-esteem, causing them to feel ashamed. Research has shown there's a negative correlation between shame about having a mental illness and seeking treatment.
    - Secondly, stigma can often lead to lost social opportunities and differential treatment. People feel uncomfortable being labeled and often avoid medical care because they don't want to be perceived as mentally ill by their social network. For instance, studies have shown that people labeled as mentally ill are less likely to receive appropriate care than those without the label.
  - Corrigan also discusses the significance of designing programs to help people cope with the implications of stigma and increase their use of mental health services. An interesting way to end this discussion is to turn this into a question and ask the students if they have ideas on how to help people with mental illnesses cope with the stigma and “break” this barrier to treatment

- Lecture – Refer to slides for the following:
  - To introduce students to the concepts of psychoanalysis and psychodynamic therapy. The vocabulary here—such as id, ego and superego are important for students to know because of their historical significance to both personality and clinical psychology. Pay special attention to the limitations of this approach. To illustrate the concept of transference, which is common in this type of therapy, consider doing the activity below.

- Activity: Illustrating the Concept of Transference
  - There is series of slides for this activity. This activity can take about 15-20 minutes. See Activities and Demonstrations (below) section for further information as well as discussion prompts.

- Lecture – Refer to slides for the following:
○ To talk about humanistic/person-centered therapy.

○ To discuss cognitive behavioral therapy (CBT) in detail, including its advantages and disadvantages.

• Activity: The Way We Think – Examples of Cognitive Behavioral Therapy Techniques

○ Consider doing this fun 15-20 minute activity to take your students through examples of how and why CBT techniques are used in therapy sessions. Detailed instructions can be found in the Activities and Demonstrations section. There is a corresponding PowerPoint slide for this activity.

○ It is also a good idea to explain some of the stigma around obtaining psychological treatment for mental illnesses.

• Lecture – Refer to slides for the following:

○ To describe the techniques and components of acceptance and mindfulness-based therapies and discusses the advantages and disadvantage of this approach.

○ To talk about Internet- and mobile-delivered therapies and briefly discusses medications, integrative and eclectic therapies.

○ Below we have provided a special topic on alternative therapies that your students may find interesting. To save you time, we have provided comprehensive details -Feel free to adapt and take what you need.

• Special Topic: Animal-Assisted Therapy

○ Students who come to your class will almost always be bringing their “grandmother’s psychology” with them. What fun to be able to demonstrate truth to an idiom they almost certainly have heard of before. A great way to do this is by discussing the merits of animal assisted therapy with your students, a topic they will probably relate to. In the Evidence-Based Teaching section, we have provided a meta-analysis that summaries the evidence on the efficacy of animal-assisted therapy (AAT) and will prove helpful if you decide to include this topic in your lecture (see Nimer & Lundahl, 2007). Note: there is no specific power point slide for this discussion but it can be easily included in the slide on “emerging treatments” especially if you frame this as “other approaches to treatment”

○ Discussion: A good way to generate interest is to start off the way the article does. You might ask the students, did you know the idea of pets helping people cope with an illness extends all the way back to Florence Nightingale? Once interest is piqued, it would be
great to briefly explain what AAT is. Generally, this therapy refers to the intentional inclusion of an animal when treating a person. Most often, this treatment is used in conjunction with other forms of therapy.

- How does it work? Usually, an accredited treatment provider directs the interactions between a patient and an animal in order to achieve predetermined goals, which may benefit from contact with an animal. The next question you could pose to the students is: “Okay, there has been a long standing-belief that interacting with animals has therapeutic benefits, but what has research discovered so far? For example, does the type of animal matter?”

- Let the students offer their thoughts and opinions before telling them that dogs produced the most consistent and moderate effect sizes in the studies included in the meta-analysis. The next question you pose could be: What is AAT most commonly used for? The response to this question is mental health illnesses. AAT improved outcomes in the following areas: autism-spectrum symptoms, medical difficulties, behavioral problems, and emotional health.

- At this point, it might be helpful for the students to have examples of how AAT is employed. Focus on mental-illness settings given the context of this module. For example, to decrease anxiety and loneliness, a child might be encouraged to pet, talk to, and interact with a dog in the presence of an AAT therapist. Mention that AAT is usually always used paired with another form of therapy. Why might that be so? Consider the anxious child sitting with her therapist. The presence of a loving and affectionate animal will promote a safe and warm environment that may encourage the child to be more amenable to receiving CBT from the therapist.

- Finally, we encourage you to end this foray into alternative therapies with a caveat. Even though the idea that animals are good for our mental and emotional wellbeing has been around for centuries, researchers only recently decided to examine the efficacy of animal therapy and additional work remains to be done.

**Activities & Demonstrations**

*Illustrating the Concept of Transference: In-Class Activity*
Time: 15-20 minutes

Materials: Students will need a piece of paper and pen.

Directions:

• Ask the class to think of a loved one (not a parent) and some aspect of the loved one's personality that they react to strongly – this can be a positive or negative trait. Give the students the opportunity to describe (on a piece of paper) this personality trait and note their thoughts and feelings towards it.

• Then, tell them to circle what they have noted down and write in “is this transference?” at the top of their paper.

• Students might be a little confused at this point, but continue on. Ask them to think about their parents and if the personality attribute they wrote about (as well as their reaction toward it) is a recreation of [an] event(s) that occurred in their relationship with their parent(s)? For instance, the instructor might ask, “Does your parent have that same personality trait that you react to so strongly?” If some students say yes, the instructor could illustrate that this is an example of what psychodynamic clinicians mean by transference.

• It is possible that some people might still not understand the link, which is perfectly okay.

• To increase the depth of this activity, explain that transference is a complicated concept and doesn't only refer to the ways in which one reacts to their parents. The instructor can put the following points on a PowerPoint slide to illustrate this complexity:
  
  • You see the other in the same way as you believed your parent to have been (simple transference).
  • You see the other as being like what you WISH your parent COULD have been like.
  • You see the OTHER AS YOU were as a child and you act like your parent did.
  • You see the other as you were as a child and you act like you WISHED your parent would have acted.
  • With the addition of the above points, the instructor is likely to help a few more students understand the connection. However, even if some students still don't see the link, do not worry too much about it as you are illustrating a concept, which is a great segue into the following:
  • Briefly discuss with the students that this class activity is an illustration; transference as applied to psychoanalytic therapy is a little different. In the current exercise, we're not talking about a neutral therapist onto whom the patient projects their thoughts and
feelings. In this activity, the person that the student describes might actually be something like the parent. However, "transference" may still be evident in that students have selected somebody who they react strongly to and related this person to someone else (i.e., their parents).

This activity has been adapted from the following website: http://users.rider.edu/~suler/transference.html

The Way We Think – Examples of Cognitive Behavioral Therapy Techniques: An In-Class Activity

Time: 15-20 minutes

Materials: You will need to develop a slide for the prompts/questions found below.

Directions:

- The questions below should appear sequentially. Ask students to write their answers to each prompt that appears on the screen (make sure to give them enough time to write down their responses between questions).

- These prompts depict various types of cognitive behavioral therapy techniques. Some of these may also be used in other types of therapies as well. After completing the activity, review the prompts and points behind each technique.

- Feel free to adapt this activity according to the time constraints. It might be enough to use just a few of these.

Prompts:

1. I often worry that I _______. (fill in the blank)

Followed this prompt by:

2. If this worry of yours was indeed true, what does it mean to you and why does it bother you so much?

Wait for students to finish writing down an answer. Once they're done, repeat the question.
"If what you JUST wrote was indeed true, what does it mean to you and why does it bother you so much?"

Once more, wait for them to finish writing, then ask again:

"If what you JUST wrote was indeed true, what does it mean to you and why does it bother you so much?"

Purpose: Asking this question repeatedly can aid in revealing thought upon thought that may be "illogical” or “faulty”.

Then you might say, "Review the statements you have written until now and respond to the following prompt".

3. What's the worst thing that could possibly happen? What do you fear most of all?

This question uncovers possible catastrophizing. Define catastrophizing for the students. In the simplest of terms, this word refers to the illogical thoughts we have when we make something out to be worse than it is.

This is a great transition into the next question:

4. When you think of the worst thing that could happen, do you really think that it's likely to happen? If so, how could you learn to cope with it?

Purpose of questions three and four: The former aims to encourage more rational and realistic thinking. The latter promotes cognitive adaption to the situation.

Then say, "Look back over the worrisome thoughts that you have written about so far, and answer this question:"  

5. I accept myself even though I ________ (do not use the word "am")

Ask the students to write this sentence multiple times (we leave it to your discretion exactly how many times), but repeating this exercise promotes "adaptive self talk" and "positive (healthy) thinking." Also refraining from using "am" prevents our human tendency towards
using labels to define ourselves (e.g., “I accept myself even though I am a failure”) and instead encourages them to think about specific traits or behaviors (e.g., “I accept myself even though I have failed before”).

This activity has been adapted from: http://users.rider.edu/~suler/cogther.html

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**Evidence-Based Teaching**


Balch presents interactive classroom demonstration, in which student volunteers play the role of a troubled patient, the patient's parents and best friend. The students 'family' and 'best friend' discuss the patient's problems with him (or her) in an improvised two-way dialogue. Subsequently, the patient talks to a client-centered therapist, a role that can be played by the instructor or an on-campus counseling/clinical psychologist. In the article, Balch provides details and background on each of these roles. After the end of the demonstration, the instructor can lead a guided discussion between the student volunteers and the rest of the class.


This article offers useful information about how stigma becomes a barrier for individuals that are in need of mental services. He proposes that this happens in one of the two following ways: 1) due to diminished self-esteem; and 2) due to lost social opportunities. Generally, people tend to be uncomfortable with labels and may avoid medical care in order to escape the stereotypes associated with mental illnesses. The article ends with a discussion of programs designed to help people cope with stigma, thereby increasing the use of mental health services.

Given that depression is one of the most common psychological disorders and can cause severe disruptions to daily activities of life, it is important to evaluate which therapies are most effective in treating it. This review demonstrates that cognitive therapy (CT) is as just as effective as antidepressant medications in treating depression. Additionally, CT effects are long-lasting and decrease chances of relapse even after therapy has been completed. Learning more about the distinctions in utility of these two different forms of treatment will enable medical professionals to better prescribe appropriate treatment.


The authors present a shortened 10-item measure of attitudes towards seeking psychological services. This two-part study established the psychometric validity and temporal stability of this brief version. These findings demonstrate the utility of using the shorter, less intrusive survey in future research.


Layard and Clark provide a solid account of why society should make a concerted effort to provide evidenced-based treatments of mental illnesses. The authors call for recognition of the fact that there are more people suffering from mental illness than any other condition. Exercising time and funds to help people overcome mental health illnesses would not only help those in need, but also help economies all over the world save a great deal of money. Cognitive behavioral therapy amongst others has been shown to be highly efficacious, and if more people have access to these treatments, it would be better in the long run on multiple levels. Additionally, this book illustrates which psychological treatments work best for different groups of people. It also urges us to do all we can to prevent these problems in the first place through better schools and a more informed society.


Animal-assisted therapy (AAT) refers to the intentional inclusion of an animal as part of treatment or therapy. This meta-analysis examines the various AAT studies thus far. Generally, AAT had moderate effect sizes in people with the following ailments: autism-spectrum symptoms, medical difficulties, behavioral problems, and emotional health. The results of this meta-analysis suggest that AAT can be useful when paired with other forms of therapy and
that future research is warranted. Additionally, this article offers general, concise information that would be useful for instructors in developing lecture content on AAT.

**Suggestions from the Society for Teaching's Introductory Psychology Primer**


**POSSIBLE ASSESSMENTS (Out of Class).**

Students search the internet for information regarding psychological disorders and evaluate the quality of that information. The assignment can be done in groups and includes a peer-evaluation component. For a full description of the activity, see the reference to Casteel (2003) below.

**(In or Out of Class).**

Questions Regarding Controversial Cases: The student is presented with a series of descriptions of an abnormal behavior under changing circumstances (cultural setting, severity of the behavior, etc.) and then asked if the behavior is normal or not. A full description of the activity and materials is available at http://www.intropsychresources.com/pmwiki/pmwiki/pmwiki.php?n=ResourcesByType.Homework

**ACTIVITIES & TECHNIQUES (In Class)**

Discussion of Abnormality: Enter class and behave oddly in some way (e.g., talking to yourself, showing excessive irritability, breaking social convention by standing in an unusual place). Then ask students to identify what was unusual about your behavior and why it is unusual. Based upon the reasons and examples they give, you can identify students’ responses as reflecting various definitions of abnormality (i.e., distress, dysfunction, unusualness,
dangerous, deviance). This activity is a fun way to get students engaged with the material and how it applies to their lives.

Videos of Individuals with Disorders: Cengage has published a large online database of video clips across a range of disorders and topics relevant to abnormal psychology (http://clipsforclass.com/abnormal.php). This library is an economical (both monetarily and in terms of your time) way of demonstrating what these disorders are like.

**RELEVANT TOP ARTICLES (Annotated Bibliography)**


This article describes an exercise whereby students describe individuals they know or hypothetical examples of people with various mental disorders. The exercise led to improved retention on a post-test of information about the disorders relative to a lecture-only control.


This article provides a method for instructing introductory students about psychological disorders using an internet based search exercise. The activity emphasizes improving students’ ability to judge the quality of internet resources while simultaneously investigating content.


In this article, the author provides a variety of background resources and commentary for understanding the social construction of mental illness. She also describes five pedagogical techniques to engage students with the material, including excellent discussion prompts. This article is a superb starting point for engaging your students in critical thinking regarding mental disorders.


This article describes an exercise where an interviewer and pseudo-client perform an interview for the class. Based upon the interview, the students must decide which among a class of disorders best describes the individual. The authors provide scripts for an anxiety disorder, a
mood disorder, and a psychotic disorder.

**Links to ToPIX Materials**

**Activities, demonstrations, handouts, etc.:**
http://topix.teachpsych.org/w/page/19981032/Psychological%20Disorders%20in%20the%20Classroom

**Books & Films:**
http://topix.teachpsych.org/w/page/39234720/Disorders

**In the News:**
http://topix.teachpsych.org/w/page/26711727/Psychological%20Disorders%20in%20the%20News

**Video/Audio:**
http://topix.teachpsych.org/w/page/19981031/Psychological%20Disorders%20Video

**Teaching Topics**

**Teaching The Most Important Course**
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

**Content Coverage**

**Motivating Students**

**Engaging Large Classes**

**Assessment Learning**
http://nobaproject.com/documents/5_Assessment_Learning.pdf
Teaching Biological Psychology


PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com/images/shared/supplement_editions/000/000/130/Therapeutic%20Orientations.ppt?1416603248.
The Noba Therapies unit contains two modules: Therapeutic orientations and Psychopharmacology.

*Psychopharmacology* provides an overview of drug treatments and how they work and interact with our nervous system. This module also briefly touches upon some controversial subjects in the field of psychopharmacology, such as the addictive nature of some drugs.

**Learning Objectives**

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Describe applications of psychology (1.3)
  - Apply ethical standards to evaluate psychological science and practice (3.1)
  - Apply psychological content and skills to career goals (5.1)

- Content-Specific Learning Objectives: Psychopharmacology
  - How do the majority of psychoactive drugs work in the brain?
  - How does the route of administration affect how rewarding a drug might be?
  - Why is grapefruit dangerous to consume with many psychotropic medications?
  - Why might individualized drug doses based on genetic screening be helpful for treating
conditions like depression?
  - Why is there controversy regarding pharmacotherapy for children, adolescents, and the elderly?

Abstract

Psychopharmacology is the study of how drugs affect behavior. If a drug changes your perception, or the way you feel or think, the drug exerts effects on your brain and nervous system. We call drugs that change the way you think or feel psychoactive or psychotropic drugs, and almost everyone has used a psychoactive drug at some point (yes, caffeine counts). Understanding some of the basics about psychopharmacology can help us better understand a wide range of things that interest psychologists and others. For example, the pharmacological treatment of certain neurodegenerative diseases such as Parkinson's disease tells us something about the disease itself. The pharmacological treatments used to treat psychiatric conditions such as schizophrenia or depression have undergone amazing development since the 1950s, and the drugs used to treat these disorders tell us something about what is happening in the brain of individuals with these conditions. Finally, understanding something about the actions of drugs of abuse and their routes of administration can help us understand why some psychoactive drugs are so addictive. In this module, we will provide an overview of some of these topics as well as discuss some current controversial areas in the field of psychopharmacology.

Class Design Recommendations

Although many courses fold pharmacological techniques into a lecture with other treatments, this form of therapy is perhaps one of the most used. Correspondingly, assigning a whole class period to this module better reflects the ubiquity of this treatment.

Please also refer to the Noba PowerPoint slides that complement this outline.

First class period (50-75 min)

- Briefly introduce of how drugs affect behavior
- Discuss pharmacokinetics
Describe drug Administration and metabolism

Talk about individualized Therapy, metabolic differences, and potential prescribing approaches for the future

Special topic: Drugs vs. therapy

Educate students on controversial issues

  - Special topic: The link between antidepressants and suicide, violence, and mania

Are drugs more effective than psychological therapies?

Optional 7-day activity: Medication adherence – Easy as can be...right?

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### Module Outline

#### Introduction

- Psychopharmacology is the study of how drugs affect brain and behavior. All **psychoactive drugs** interfere or alter how neurons communicate with each other. Neurons communicate with each other by releasing a chemical called a **neurotransmitter** across a tiny space between the neurons, known as the **synapse**. Some of the most important neurotransmitters in terms of psychopharmacological use are: acetylcholine, dopamine, norepinephrine, serotonin, glutamate, GABA, and endogenous opioids. Psychoactive drugs can either increase neurotransmission activity at the synapse (**agonists**) or reduce it (**antagonists**). Drugs accomplish these results by different mechanisms. While drugs target specific neurotransmitters in their primary mechanisms, drugs often do not work exactly where intended. This contributes to side effects. Commonly, individuals prescribed **psychotropic drugs** take additional drugs to counteract the side effects of the initial drug.

Pharmacokinetics: What Is It – Why Is It Important?

- **Pharmacokinetics** refers to how our body handles the drugs we take. The acronym ADME stands for absorption (how the drug gets into the bloodstream), distribution (how the drug reaches the brain), metabolism (how the drug is broken down), and excretion (how the drug leaves the body).
Drug Administration

- The way we take drugs impacts how quickly they reach the brain. Oral administration, the most common, is relatively slow. Drugs enter the stomach and are absorbed in the small intestine. The rate of absorption can be affected by, among other factors, the type and quantity of food in your stomach. The fastest methods of administration, however, are inhalation and intravenous.

- The more quickly a drug reaches the brain and activates the reward center, the higher the risk for abuse and addiction (i.e. smoking). The cues associated with such drugs can be equally intense, amplifying the addiction.

Drug Metabolism

- Metabolism, or the breakdown of drugs, occurs primarily in the liver. The liver produces enzymes, proteins that speed up chemical reactions involved in the breakdown of psychoactive drugs. Enzymes exist in families and the same family of enzymes breaks down many psychoactive drugs: the cytochrome P450 superfamily.

- Tolerance to drugs can occur through repeated exposure. This is particularly true of sedative drugs like opiate-based painkillers or alcohol. Some drugs (like alcohol) cause enzyme induction, an increase in the number of enzymes produced by the liver. For example, chronic alcohol consumption can lead to alcohol being broken down more quickly, requiring more drinks to reach the same affect.

Recent Issues Related to Psychotropic Drugs and Metabolism

- Grapefruit Juice and Metabolism. Certain foods can alter the rate of drug metabolism. Grapefruit juice, for example, suppresses cytochrome p450 enzymes in the liver, and these enzymes are responsible for the breakdown of many drugs. If the enzymes are suppressed, drugs can potentially reach toxic levels.

Individualized Therapy, Metabolic Differences, and Potential Prescribing Approaches for the Future

- Mental illnesses contribute to more disability in western countries than all other illnesses. One-in-four adults is estimated to experience a mental health issue in any given year. Although there is no “magic bullet”, pharmacotherapy combined with psychological therapy may be the most effective treatment for psychiatric conditions. Nevertheless, individuals differ in their response to particular drug interventions. Understanding the reasons behind
these differences will improve our ability to treat those in need.

- For this reason, the individualized treatment approach has garnered significant interest within the scientific community. For example, we know that individuals vary genetically with respect to the cytochrome p450 enzymes and their ability to break down drugs. The general population falls into four categories ranging from ultra-extensive metabolizers to poor metabolizers. If a doctor could pre-determine the type of metabolizer his patient is, he could then make a more informed and individualized decision about the drug dosage.

Other Controversial Issues

- **Juveniles and Psychopharmacology.** A recent Center for Disease Control study has suggested that as many as 1 in 5 children between the ages of 5 and 17 may have some type of mental disorder. The incidence of bipolar disorder and autism among adolescents and children is also on the rise. While there is no definitive answer as to why these changes are occurring, some believe the change is a result of increased awareness. Others suggest the change is a result of the criterion used for diagnosis, while others point to environmental factors.

- Questions remain as to how children and adolescents should be treated for these disorders, particularly since most psychotropic drugs have been tested for safety and efficacy on adults, not children. The scientific community is concerned about drugs that alter neuronal activity in a developing brain as they could have significant unintended consequences. As such, there is need for clinical trials on children and adolescents; however, these trials will give rise to important ethical considerations.

- **The Elderly and Psychopharmacology.** The elderly are estimated to reach 20% of the population by 2030, consuming 40% of the prescribed medication. However, they too have not typically been included in clinical trials of psychotropic drugs. **Polypharmacy**, which is the use of multiple drugs, is a common occurrence among the elderly. There are many issues that make the elderly unique with respect to taking prescribed drugs, such as slower metabolism of drugs, risk factors like falling and breaking bones, and the impact of the psychotropic drugs on bone density.

**Difficult Terms**

- Agonists
- Antagonists
- Enzymes
- Enzyme induction
Lecture Frameworks

Overview

The module Psychopharmacology provides information on how drugs affect the brain and behavior, how they are administered and metabolized. The content also reviews how drugs affect people in various ways and delves into some controversial issues. There is quite a bit of content to cover – we suggest generating interest with our special topics and the optional activity. In addition to the videos listed at the end of the module in the Discover Psychology text, we have provided links to a few videos you might consider showing the class. There is also some difficult vocabulary and you may be asked to clarify or explain key terms.

First Class Period:

• Lecture – Refer to slides for the following:
  ◦ To introduce how drugs affect behavior.
  ◦ To describe pharmacokinetics.
  ◦ To talk about drug administration and metabolism. The example discusses the effect of grapefruit juice on metabolism.
  ◦ To describe individualized therapy, metabolic differences and potential prescribing approaches for the future.

• Special Topic: Drugs vs. Therapy
At this point, the students will have some idea that depression is one of the most prevalent psychological disorders in North America. It is likely that the students have either experienced depression themselves or known someone else with this diagnosis.

Discussion: After this introduction, you could ask the students what they think works better at treating depression – medication or some of the therapies that were covered in the previous module.

Video: This is a three-minute video from the American Psychological Association that would be appropriate to show at this time: https://www.youtube.com/watch?v=Ery8RHHEfIM

The video discusses why drugs alone may not be enough to treat various disorders. Keep in mind the video only briefly touches upon mental illnesses (i.e., major depressive disorder); the bulk of the video focuses on drugs and HIV/AIDS. However, it still briefly mentions the arguments made by DeRubeis, Siegle, and Hollon (2008; see evidence-based teaching section).

After showing the students this brief clip, you might briefly discuss the research presented by DeRubeis et al. (2008) as they note that in many instances therapy is as effective as medication. In fact, as compared to drugs, the beneficial effects of therapy last longer (even after treatment is complete). This topic is a great segue into some controversial issues related to drug therapies.

Lecture – Refer to slides for the following:

To talk about juveniles and psychopharmacology
To discuss issues about the elderly and drug therapies

Special Topic: The Link between New SSRIs and Suicidality, Violence and Mania

In keeping with the previous slides on controversial issues, this topic illustrates some worrisome side effects of serotonin reuptake inhibitors (SSRIs), also known as antidepressants.

Breggin (2002; see Evidenced-Based Teaching section) discusses the newer wave of SSRIs (e.g., Prozac), and the harmful side effects they can cause to an individual's emotional and mental well-being.

SSRIs have been linked to increased incidence of mania, depression, and obsessive thoughts, which in turn leads to increased rates of suicide, violent behavior, and misdiagnoses of the side effects as psychological disorders.

The lesson you want to impart to your students is: drugs are not always better treatment options. It's important to be able to talk to medical health professionals about all the
available treatment options.

• Discussion

◦ A fun way to end the class will be assigning the activity below. Use this discussion to highlight the significance of the activity. In the first module of this unit, you may have described stigma as a barrier to seeking psychological treatment. Ask the students to think about what could serve as barriers to drug therapies? If one of them does not suggest it, then you should highlight adherence as an important issue.

• Activity: Medication Adherence – Easy As Can Be...Right?

◦ In order to explain this activity, you will need to give some information to students about adherence. Non-adherence refers to not taking medication exactly as advised by doctors. One of the most commonly cited reasons for non-adherence is simply forgetting. Others include patients not realizing how incredibly important it is to take medication exactly as prescribed.

◦ According to a report by the National Community Pharmacists Association (2013), non-adherence to medication can harm a patient’s health and add increased cost to our healthcare system. Ask students if they have any guesses on how much and allow 2-3 students to shout out a few numbers. They are not likely to guess that non-medication adherence can add up to 290 billion dollars of cost to our healthcare system...annually! Be as dramatic as possible with this last fact. Then, ask students how they feel about that. Be patient as many are likely to express outrage or strong opinions about this.

◦ Now introduce the activity below. This is a 7-day activity that students must complete on their own, but it requires very little time on their part. Tell students that although they will not be externally penalized (just as doctors can't punish their patients for not following their advice), you expect everyone to complete this assignment. For detailed instructions on the activity, refer to the Activities and Demonstrations section below.

Activities & Demonstrations

Medication Adherence: In-Class Activity
Time: 7-day assignment, but should take no more than 1-15-minutes per day.

Materials: Kool-Aid, Tic-Tacs, copies of each medication protocol (3 protocols in total), copies of data recording sheet (3 recording sheets in total).

Directions: Give your students the following prelude.

- HIV (human immunodeficiency virus) is a chronic condition. Although HIV is not a psychological disorder, the same principles could apply to someone taking drugs to treat schizophrenia. No treatment can remove this virus from the body. If treated, HIV is not lethal. However, if left untreated, HIV can degrade the immune system to the point non-functionality. When this happens, we refer to patients as having Acquired Immune Deficiency Syndrome (AIDS) and various other harmful infections can just as easily occur.

- There is a treatment solution: HIV Antiretroviral drug therapy can subdue HIV and delay the onset of AIDS for a long time. Here's the catch (or two).
  - HIV has a high mutation rate - what this means is that one drug is usually not effective and the body can become resistant. As a result, multiple medications are usually assigned, so if the body becomes resistant to one type of drug, there will be other drugs to make up for it.
  - In this type of therapy, adherence to the medication is very important. Not being consistent will lead to the development of drug resistant strains. In other words, non-adherence can essentially be worse than not being treated at all.

- Each student is to imagine that they are a person living with HIV. Everyone will be assigned one of three treatment regimens exactly as prescribed, but instead of actual drugs, we will use Kool-Aid packets and tic-tac mints.

- Then, randomly assign each student to one of three protocols, each with varying difficulty. Remind them that it is important to be consistent and follow the instructions as provided! Failure to do so could have very damaging consequences as explained earlier.

- Students will also be given a recording data sheet, on which they will record the time and the date each time they take their “dose”. Instruct them to be as honest as they can on their recording sheets. This is not a contest to see who's the absolute best at treatment adherence and they will not be penalized for noting down when they did not take their medication.

- As a class, you can also come up with hypotheses. For example, students with the simplest treatment protocol will have the best adherence. Alternatively, you can choose to refrain
from coming up with any hypotheses at all and just highlight general results of the data you receive from the students’ activity sheets.

- Note: Remind the students that they do not have to ingest the Kool-Aid or Tic-Tacs if they don’t want to, especially if they have any dietary restrictions. If anyone wishes to not actually take anything, all they have to do is follow the instructions leading up to ingestion, dispose of the dose instead of ingesting it, and write down the time/date as if they actually took the “medicine”.

Protocols:

#1)

- Fuzeon (Kool-Aid): Mix a packet with 8 oz of water, let stand for 10 minutes, and then drink it. Take it every 12 hours.
- Kaletra (spearmints tic tac): Take one tablet every 12 hours.
- Combivir (cinnamon tic tac): Take one tablet every 12 hours.
- If you forget to take a dose at the scheduled time, take it as soon as you remember, unless you are scheduled to take your next dose in 6 hours or less. If so, skip the dose, and record it as missed. In either case, take the next scheduled dose at its regular time.

#2)

- Truvada (citrus twist tic tac): Take one tablet once a day with or without food.
- Reyataz (orange tic tac): Take two tablets once a day with food.
- Norvir (wintergreen tic tac): Take one tablet once a day with Reyataz.
- If you forget to take a dose at the scheduled time, take it as soon as you remember, unless you are scheduled to take your next dose in 12 hours or less. If so, skip the dose, and record it as missed. In either case, take the next scheduled dose at its regular time.

#3)

- Atripla (orange tic tac): Take at bedtime once a day on an empty stomach.
- If you miss taking the dose at bedtime, record it as missed. Then take the next scheduled dose at its regular time.

To download the recording sheets for each protocol, go the following website:
http://www.hhmi.org/biointeractive/classroom-activities-drug-adherence-activity

Here are two changes to remind students to note in terms of the recording sheets:

- Where it says to indicate school name, the students should note down the course name and section.
- This activity is only for 7 days, so they are only to record until day 7.

Adaptation for large classes:

- To save time and money: if you have a large class of students, ask your class for 30 volunteers (10 for each of the three protocols) to do this 7-day activity and then present their results to the class.

This activity is adapted from:

http://www.hhmi.org/biointeractive/classroom-activities-drug-adherence-activity

Videos:

- Psychiatric Drugs: http://education-portal.com/academy/lesson/psychiatric-drugs.html#lesson
  - Time: 5:30 minutes
  - This video introduces how psychiatric medications were discovered
  - It covers three different classes of psychiatric drugs and how they work: antidepressants to treat major depression; antipsychotics to treat schizophrenia; and lithium to treat bipolar disorders.

- “This Is Psychology” Episode 9: Drugs and therapy – American Psychological Association: https://www.youtube.com/watch?v=Ery8RHHEf1M
  - Time: 4 minutes
  - This video talks about behavioral therapy, drug therapy, and the importance of combining the two when treating disorders and chronic diseases.
Outside Resources

Video: Neurotransmission
http://www.youtube.com/watch?v=FR4S1BqdFG4

Web: Description of how some drugs work and the brain areas involved - 1

Web: Description of how some drugs work and the brain areas involved - 2
http://learn.genetics.utah.edu/content/addiction/drugs/mouse.html

Web: Information about how neurons communicate and the reward pathways
http://learn.genetics.utah.edu/content/addiction/reward/neurontalk.html

Web: National Institute of Alcohol Abuse and Alcoholism
http://www.niaaa.nih.gov/

Web: National Institute of Drug Abuse
http://www.drugabuse.gov/

Web: National Institute of Mental Health

Web: Neurotransmission


Web: Ways drugs can alter neurotransmission
http://bioserv.fiu.edu/~waltercm/b/addicitions/dopamine.htm

Evidence-Based Teaching


Part of the module on psychopharmacology covers how psychological disorders and treatments might affect children. Beidel et al.’s article compares the effects of behavioral therapy and medication (i.e., Prozac) in treating social phobias among children. The findings of this report indicated that more children responded to the behavioral therapy than the medication. Unlike the medication, the behavioral therapy resulted in improved general functioning and social skills in addition to reducing social distress, suggesting that behavioral therapy may be more effective in treating social phobias among children overall.


In this review, Dr. Breggin informs us that there is substantial evidence demonstrating the dangers of newer serotonin reuptake inhibitors (SSRIs) (e.g., Prozac, Zoloft, Praxil, etc.). Notably, these antidepressants can lead to a multitude of unwanted side effects, including manic psychoses, depression, and obsessive thoughts. In turn, these side effects can have a detrimental influence on a person’s mental health, leading to increased rates of suicide, violent behavior, and misdiagnoses of additional psychological disorders. Over the years, numerous studies, epidemiological reports, and clinical trial results have corroborated these findings, suggesting the need for more stringent regulations around the use of SSRIs.


Given that depression is one of the most common psychological disorders and can cause severe disruptions to daily activities of life, it is important to evaluate which therapies are most effective in treating it. This review demonstrates that cognitive therapy (CT) is as just as effective as antidepressant medications in treating depression. Additionally, CT effects are long-lasting and decrease chances of relapse even after therapy has been completed. Learning more about the distinctions in utility of these two different forms of treatment will enable medical professionals to better prescribe appropriate treatment.

Links to ToPIX Materials
Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19981032/Psychological%20Disorders%20in%20the%20Classroom

Books & Films:
http://topix.teachpsych.org/w/page/39234720/Disorders

In the News:
http://topix.teachpsych.org/w/page/26711727/Psychological%20Disorders%20in%20the%20News

Video/Audio:
http://topix.teachpsych.org/w/page/19981031/Psychological%20Disorders%20Video

Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation
This module has an associated PowerPoint presentation. Download it at http://nobaproject.com//images/shared/supplementEditions/000/000/131/Psychopharmacology.ppt?1416603049.
Chapter 15: Social Psychology
The purpose of this unit is to help students understand what social psychology is, how researchers study it and understand social phenomena, and the applications of social psychology to students’ everyday lives.

The fourth module, Prejudice, Discrimination, and Stereotyping, focuses on in-group and out-group behavior. It also provides context for some of the social shifts in prejudice over the years.

Learning Objectives

• Relevant APA Learning Objectives (Version 2.0)

  ◦ Describe key concepts, principles, and overarching themes in psychology (1.1)
  ◦ Develop a working knowledge of psychology's content domains (1.2)
  ◦ Describe applications of psychology (1.3)
  ◦ Engage in innovative and integrative thinking and problem solving (2.3)
  ◦ Build and enhance interpersonal relationships (3.3)
  ◦ Interact effectively with others (4.3)
  ◦ Apply psychological content and skills to career goals (5.1)
  ◦ Exhibit self-efficacy and self-regulation (5.2)
  ◦ Enhance teamwork capacity (5.3)
Content Specific Learning Objectives: Prejudice, Discrimination, and Stereotyping

- Distinguish prejudice, stereotypes, and discrimination.
- Distinguish old-fashioned, blatant biases from contemporary, subtle biases.
- Understand old-fashioned biases such as social dominance orientation and right-wing authoritarianism.
- Understand subtle, unexamined biases that are automatic, ambiguous, and ambivalent.
- Understand 21st century biases that may break down as identities get more complicated.

Abstract

People often are biased against people not from their own group, showing prejudice (emotional bias), stereotypes (cognitive bias), and discrimination (behavioral bias). Bias used to be more open, but during the 20th century, bias became more subtle (automatic, ambiguous, and ambivalent). In the 21st century, social group categories have become more complex, perhaps transforming older biases.

Class Design Recommendations

This module of social can be taught in a single class period or less, with the unit as a whole taking 2-3 class periods. Please also refer to the Noba PowerPoint slides that compliment this outline.

1st class period (50 min – 75 min):

- Overview
  - Defining prejudice, discrimination, and stereotypes
  - How these have changed over time (from overt/explicit to subtle/implicit)
- Understanding Bias
Module Outline

Introduction

• This module focuses on biases against social groups, which social psychologists sort into emotional prejudices, mental stereotypes, and behavioral discrimination.

Old-fashioned Biases: Almost Gone

• Old-fashioned stereotypes were overt and unapologetic and people expected other people to share their prejudices (i.e., blatant biases).

• Social Dominance Orientation (SDO). Describes a belief that group hierarchies are inevitable in all societies and even a good idea, to maintain order and stability. SDO predicts endorsing the superiority of certain groups: Whites, men, native-born residents, heterosexuals, and Christians. This means seeing minorities, women, immigrants, homosexuals, and non-Christians as inferior.

• Right-wing Authoritarianism (RWA). Focuses on value conflicts instead of the economic ones that SDO targets. RWA endorses respect for obedience and authority in the service of group conformity.

20th Century Biases: Subtle but Significant

• Automatic Biases. Liking yourself and your groups is human nature. The larger issue is that own-group preference suggests liking other groups less.
• Ambiguous Biases. People favor their in-group and distance themselves from the out-group (e.g., social identity theory, self-categorization theory, and aversive racism).

• Ambivalent Biases. People often have mixed feelings toward other groups, not all stereotypes are all bad, and emotional prejudices may be ambivalent. A simple way to understand these mixed feelings, across a variety of groups, results from the Stereotype Content Model (which shows that social groups are viewed according to their perceived warmth and competence). Some group stereotypes are mixed, high on one dimension and low on the other. Groups stereotyped as competent but not warm, for example, include rich people and outsiders good at business (Jewish or Asian people, in the U.S. at this time). The other mixed combination is high warmth but low competence. Groups who fit this combination include older people and disabled people. Altogether, these four kinds of stereotypes and their associated emotional prejudices (pride, disgust, envy, pity) occur all over the world, for each society’s own groups.

21st Century Prejudices: It’s Complicated

• As our nation become more diverse, more global, and more intermarried, most people are encountering a bigger variety of people in everyday life and certainly through the media. People’s identities are multifaceted intersecting across gender, race, class, age, region, and more. Identities are not so simple, and maybe the 21st century will allow us to recognize each other for the content of our character instead of the color of our skin or the cover on our outside.

Difficult Terms

Ambiguous Biases
Ambivalent Biases
Automatic Biases
Aversive Racism
Blatant Biases
Right-wing Authoritarianism
Self-Categorization Theory
Social Dominance Orientation
Social Identity Theory
Of all the modules in this unit, this can be the touchiest for students. Many students have strong opinions or experiences when it comes to prejudice and discrimination. Therefore, before you design you lecture, you want to think carefully about what you will say and what examples you choose to use. Just remember that being sensitive doesn't necessarily mean being boring – pick examples that are interesting and that get students involved.

• Discussion/Warm-Up
  
  ◦ A great way to start off this module is to discuss the prejudice activity from Module 1 (if you haven't done it yet, now is a great time to do so). For most students, this introduces the concept that even though we might not have explicit prejudices, we still have implicit reactions to race, gender, age, etc.

• Lecture – Refer to slides for the following:
  
  ◦ To talk about biases across time. Once you've completed the activity, use it as a springboard to talk about how issues of prejudice, discrimination, and stereotypes have changed over time (moving from explicit, such as racial segregation, to implicit, like the article mentioned in Module 1). This is also a great time to tie the concepts together across the Modules (since Modules 1 and 4 both talk about implicit vs. explicit biases).

  ◦ The big content for this module is the in-group and out-group material. As always, you probably want to start with defining the terms. After terms are defined, you might consider having students think about their own in-groups and out-groups (an example you might start them off with is their university versus a rival university; students tend to have negative views about students from rival schools). Once they understand what in-groups and out-groups are, you can start discussing the consequences of such divisions. That is, WHO CARES if I don't really like students from a rival school? What does it REALLY MATTER if I think people with different political views are idiots? And of course we know from years of research that how we define our world in terms of in-groups and out-groups does matter (prejudice, stereotypes, etc.). It influences the way we interpret information (see the second class activity: In-group/Out-group issues in
politics) and how we make future decisions. You can then talk about stereotypes (e.g., stereotype content model).

- Activity: Group Bias in Politics
  - See Activities/Demonstrations (below) for instructions.

Activities & Demonstrations

In-group/Out-group issues in politics: In-Class Activity

This in-class activity is designed to help students understand the implications of in-group and out-group biases.

- Time: 10 minutes
- Directions:
  - Show the video clip to students. Note: this is clip is political in nature; John Stewart demonstrates some inconsistencies that some Republican leaders have demonstrated over different issues. Because this video represents only one side, consider explaining to students that both parties are prone to these in-group/out-group biases. That is, remind them that you are showing the clip because it demonstrates the principle of such biases.
  - Once they have seen the video, have them reflect on what they just saw. Who was the in-group? Out-group? How did this influence perception? Were the people in the video aware of their biases and resulting discrepancies?

Additional Activities

- This activity, which requires minimal preparation, illustrates how stereotypes can result in biased leader selection. It is an easy in-class activity to conduct that requires approximately 20 minutes of class time, involves all students, and is best demonstrated in larger size classes that include both male and female students.


- "Observer Biases in the Classroom" / M. E. Kite / outlines 3 activities that demonstrate common perceptual errors described in the social psychological literature
- "Unique Inviulnerability: A Classroom Demonstration in Estimating Personal Mortality" / C. R. Snyder / demonstrates the unique invulnerability effect in a demonstration where students were told the average longevity for persons in the U.S. and then asked to predict their own age of death
- "Demonstrating a Self-Serving Bias" / D. S. Dunn / asks students to list their strengths and weaknesses to reveal a bias toward reporting positive attributes
- "On Seeing Oneself as Less Self-Serving Than Others: The Ultimate Self-Serving Bias?" / J. Friedrich / designs a demonstration of the self-serving bias by asking students to rate either the likelihood that they would rate themselves above average or that the average person would do so


- The desired pedagogical objective is the student's own analysis and internalization of what scientific psychology has to say about prejudice and discrimination. This understanding is a basic need in a multicultural, multiethnic society, and in an increasingly global community. This activity offers a variety of teaching suggestions to help students learn about the causes and effects of prejudice (attitudes and beliefs) and discrimination (behavior) based on
those attitudes and beliefs at different points of the introductory psychology course.


- Instructors often use the IAT as an assignment or demonstration for hidden biases. However, it is feasible that students may be upset or uncomfortable after taking the IAT. This article found that although students reported slight negative affect after taking the IAT, it still enhanced their understanding of social cognition. It is important to continue to integrate the use of the IAT in combination with classroom instruction and discussion.

**Outside Resources**

Web: Website exploring the causes and consequences of prejudice.
http://www.understandingprejudice.org/

**Evidence-Based Teaching**


- The labeling exercise is a classroom activity that enables students to explore stereotyping processes relevant to the perceiver and the target of stereotypes. 75 students participated in the labeling exercise and evaluated the exercise upon its completion. Ss were assigned stereotypical trait descriptors and, within the context of a specific task, were asked to treat each other according to those descriptors. Results show that this exercise provides an engaging introduction to the topic of social perception and encourages discussion of approaches to prejudice reduction. Evaluation data indicate consistently favorable ratings of this exercise.

**Suggestions from the Society for Teaching's Introductory Psychology**
Primer


POSSIBLE ASSESSMENTS (Out of Class) Complete the IAT

Students can complete the IAT at https://implicit.harvard.edu/implicit/. Ask students to complete the Race IAT and one more of their choosing (e.g., weight, sexuality, religion, age, etc.). A reflection paper might be assigned regarding their experience and the validity of the IAT.

ACTIVITIES & TECHNIQUES (In Class) Stereotypes:

- When discussing social perception and stereotypes, the classic study by Jane Elliot can be replicated either in person or by watching a clip from either The Eye of the Storm or A Class Divided (http://www.pbs.org/wgbh/pages/frontline/shows/divided/).

- Ask students what labels we currently categorize by, could this be replicated in modern classrooms, and how can we minimize the effects of stereotypical assumptions. This is often a difficult discussion to have, encouraging students to be honest and respectful and emphasizing commonalities (e.g., we are all college students at XYZ) might help alleviate some of the tension.

- Remember also not to call on students directly to be a prototype for their social group (e.g., what stereotypes have you experienced as a Black woman, etc.).

Links to ToPIX Materials

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19981041/Social%20in%20the%20Classroom

Current events/news:
http://topix.teachpsych.org/w/page/23142325/Social%20in%20the%20News
Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com/images/shared/supplementditions/000/000/140/Prejudice,%20Discrimination,%20and%20Stereotyping.ppt?1453162201.
The purpose of this unit is to help students understand what social psychology is, how researchers study it and understand social phenomena, and the applications of social psychology to students’ everyday lives.

The third module, Persuasion: So Easily Fooled, provides an overview of the power of persuasion. It explains the paths of persuasion, the criteria of trustworthiness (which ultimately leads to persuasion), and other tricks used to persuade individuals politically, socially, religiously, and financially. By exploring the underlying psychological mechanisms to such phenomena, students also learn how to safe-guard against such persuasion tactics.

**Learning Objectives**

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology’s content domains (1.2)
  - Describe applications of psychology (1.3)
  - Engage in innovative and integrative thinking and problem solving (2.3)
  - Build and enhance interpersonal relationships (3.3)
  - Interact effectively with others (4.3)
  - Apply psychological content and skills to career goals (5.1)
  - Exhibit self-efficacy and self-regulation (5.2)
Enhance teamwork capacity (5.3)

- Content Specific Learning Objectives: Persuasion: So Easily Fooled
  - Recognize the difference between the central and peripheral routes to persuasion.
  - Understand the concepts of trigger features, fixed action patterns, heuristics, and mindless thinking, and how these processes are essential to our survival but, at the same time, leave us vulnerable to exploitation.
  - Understand some common “tricks” persuasion artists may use to take advantage of us.
  - Use this knowledge to make you less susceptible to unwanted persuasion.

Abstract

This module introduces several major principles in the process of persuasion. It offers an overview of the different paths to persuasion. It then describes how mindless processing makes us vulnerable to undesirable persuasion and some of the “tricks” that may be used against us. One important note about this topic: students tend to underestimate the effect that persuasion has on them. While many students concede that advertising, peer influence and other persuasive tactics might work on others they are more reluctant to accept the possibility they are similarly influenced. You do not need to convince the students otherwise to effectively teach this material.

Class Design Recommendations

This module of social should be taught in less than a single class period (especially if you are on a time crunch), with the unit as a whole take 2-3 class periods. Please also refer to the Noba PowerPoint slides that compliment this outline.

1st class period (50 min – 75 min):

- Persuasion Overview
  - Definition
Paths of Persuasion

Triggers & Fixed Action Patterns (FAPs)

Source of Persuasion: Triad of Trustworthiness

- Perceived Authority
- Honesty
- Likability

Manipulating Perceptions of Trustworthiness

- Testimonials & Endorsement, Presenting the Message as Education, Word of Mouth, The Maven

Other Tricks of Persuasion

- Reciprocity, Social Proof, Commitment and Consistency, A Door in the Face, And That's Not All, Sunk Cost Trap, Scarcity and Psychological Reactance
- Defending Against Persuasion

Module Outline

Introduction

- Persuasion has been defined as “the process by which a message induces change in beliefs, attitudes, or behaviors.” It can differ in whether it targets public compliance or private acceptance, is short-term or long-term, whether it involves slowly escalating commitments or sudden interventions and, most of all, in the benevolence of its intentions. Whatever the content, however, there is a similarity to the form of the process itself.

Two Paths to Persuasion

- There are two paths; the central and peripheral routes to persuasion.
The central route employs direct, relevant, logical messages. It is expected that your audience is motivated, will think carefully about what you presented, and will react on the basis of your arguments. The central route is intended to produce enduring agreement.

The peripheral route relies on superficial cues that have little to do with logic. It requires low effort from the target and often exploits rule-of-thumb heuristics that trigger mindless reactions.

Triggers and Fixed Action Patterns

- Fixed action patterns (FAPs) are sequences of behavior that occur in exactly the same fashion, in exactly the same order, every time they’re elicited by triggers (minute details of the situation that activate FAPs).
- The effectiveness of peripheral persuasion relies on our frequent reliance on FAPs that are triggered by details of the situation. These mindless, rules-of-thumb are generally effective shortcuts for coping with the overload of information we must confront.

The Source of Persuasion: The Triad of Trustworthiness

- Studies have identified three characteristics that lead to trust: perceived authority, honesty, and likability.
- Authority. We assume positions of authority give people special access to information and power. Usually we are correct, which becomes a convenient shortcut to sound decision making. Uncritical trust in authority may, however, lead to bad decisions.
- Honesty. The moral dimension of trustworthiness. A trusted brand or company name becomes a mental shortcut for consumers.
- Likability. Bottom line is that we trust people we like (e.g., celebrity endorsements).

Manipulating the Perception of Trustworthiness

- The perception of trustworthiness is highly susceptible to manipulation. the most common psychological strategies: testimonials, message as education, word of mouth, and the maven.
- Testimonials & Endorsement. Employs someone who people already trust to testify about
the product being sold. Children are especially vulnerable to celebrity endorsements.

- Presenting the Message as Education. The message may be framed as objective information.
- Word of Mouth. Surveys show we turn to people around us for many decisions. Persuasion professionals may exploit these tendencies.
- The Maven. The seeding process begins by identifying so-called information hubs—individuals the marketers believe can and will reach the most other people. Mavens (a) know a lot of people, (b) communicate a great deal with people, (c) are more likely than others to be asked for their opinions, and (d) enjoy spreading the word about what they know and think.

### Other Tricks of Persuasion

- Reciprocity. Humans are motivated by a sense of equity and fairness. When someone does something for us or gives us something, we feel obligated to return the favor in kind.
- Social Proof. If everyone is doing it, it must be right. This principle derives from two extremely powerful social forces—social comparison and conformity. We compare our behavior to what others are doing and, if there is a discrepancy between the other person and ourselves, we feel pressure to change.
- Commitment and Consistency. Once we have made an initial commitment, it is more likely that we will agree to subsequent commitments that follow from the first (e.g., foot in the door persuasion techniques).
- A Door in the Face. Persuader begins with a large request they expect will be rejected. They want the door to be slammed in their face. Looking forlorn, they now follow this with a smaller request, which, unknown to the customer, was their target all along.
- And That's Not All! This is a variation on door-in-the-face. Whereas DTF begins with a request that will be rejected, that's-not-all gains its influence by putting the customer on the fence, allowing them to waver and then offering them a comfortable way off.
- Sunk Cost Trap. The trap occurs when a person's aversion to loss impels them to throw good money after bad, because they don't want to waste their earlier investment.
- Scarcity and Psychological Reactance. People tend to perceive things as more attractive when their availability is limited, or when they stand to lose the opportunity to acquire them on favorable terms.

### Defending Against Unwelcome Persuasion
• The most commonly used approach to help people defend against unwanted persuasion is known as the “inoculation” method. Research has shown that people who are subjected to weak versions of a persuasive message are less vulnerable to stronger versions later on.

• Stinging. After viewing and responding to a first set of advertisements, participants were immediately confronted with their gullibility. In a second set of ads, subjects were not only more likely to recognize the manipulation in deceptive ads; they were also less likely to be persuaded by them.

• Anti-vulnerability trainings such as these can be helpful. Ultimately, however, the most effective defense against unwanted persuasion is to accept just how vulnerable we are.

Conclusion

• This module has provided a brief introduction to the psychological processes and subsequent “tricks” involved in persuasion. It has emphasized the peripheral route of persuasion because this is when we are most vulnerable to psychological manipulation.

Difficult Terms

Central Route
Door in the Face
Fixed Action Patterns (FAPs)
Foot in the Door
Peripheral Route
Psychological Reactance
Reciprocity
Social Proof
Sunk Cost Trap
The Maven
Trigger Features

Lecture Frameworks

Overview
Teaching persuasion can actually be a little difficult. It’s not because the concepts are hard, it’s because people (i.e., students) often think they are immune to persuasion. So getting students to not only learn the concepts, but to actively apply them is the biggest challenge in this module. However, having said that, persuasion is a fun topic to teach because it’s EVERYWHERE.

First Class

- Discussion/Warm-Up
  - You might consider starting this unit out with students reflecting on their own susceptibility to persuasion (e.g., use Likert-type questions such as: I am easily persuaded by commercials; I buy products based on celebrity endorsements, etc.). The easiest way to do this is to use an i-clicker or similar electronic polling response system, but you can go the traditional route by having them write down or think about their responses to these questions (we like the electronic polling system because results can be immediately aggregated and shared with the class). Typically, students vastly underestimate how often or easily they are persuaded.
  - Now that you’ve set the stage for persuasion, you can start with the content, such as what persuasion is and the paths of persuasion (central and peripheral routes). To demonstrate the different path routes, find two different ads – one for each path. To really highlight the differences, consider finding ads that try to sell the same idea but do it differently (e.g., some anti-smoking campaigns appeal to emotion and fear by showing the emotional plight of lung cancer patients; others try to persuade through the presentation of information).

- Lecture – Refer to slides for the following:
  - To examine sources of persuasion. The next step is to discuss who is trustworthy, and therefore, persuasive (i.e., perceived authority, honesty, and likability). For each of these, you might want to find either print or television ads to demonstrate each concept.
  - To talk about manipulating perceptions of trustworthiness. Once students understand what leads to trust, you can talk about how trust is manipulated (e.g., testimonials) as well as other classic tricks (e.g., foot-in-the-door). Again, using examples will help students understand the concepts and keep them engaged.

- Here, you might consider the in-class activity suggested below, which helps students identify persuasion techniques on their own.
• Activity: Creating a Persuasive Ad
  
  ◦ See Activities/Demonstrations (below) for instructions.

• Lecture – Refer to slides for the following:
  
  ◦ To talk about defending against persuasion. Finally, you can talk about how to safeguard against persuasion tactics. Kick this off by asking them about their recent purchases – have they ever bought a product based on word of mouth? Who did they hear it from? Was it possibly “The Maven” at work? Would they rather shop at Wal-Mart or Target (for identical products)? Why? These questions help them reflect that, yes, they too are susceptible to persuasion tactics. You can then contrast this discussion with the answers from the beginning of class. Plus, now that they know they are susceptible, you can finish up the class discussion with how to safeguard against persuasion tactics.

• Activity: Persuasion in Advertising
  
  ◦ For this activity, you will want to find a few advertisements that students can analyze for the main concepts of persuasion (ideally, you have a variety of ads that highlight the different aspects discussed in class or the module). See Activities/Demonstrations (below) for instructions.

Activities & Demonstrations

Psychology Applied: Persuasion in Advertising: Out of Class or In-Class Activity

This mini-writing activity can be done in or outside of class. For this activity, you will want to find a few advertisements that students can analyze for the main concepts of persuasion (ideally, you have a variety of ads that highlight the different aspects discussed in class or the module).

• Time: 15 minutes
• Materials: Advertisement(s)
Directions:

- Show students a few advertisements (infomercials are fun because they are so silly; persuasion campaigns for political and social causes aren’t as fun, but are more effective).
- Once students have seen the video, give them some to reflect and answer a few prompts (examples below).

Example prompts:

- What route of persuasion do the advertisers seem to use (e.g., central vs. peripheral)? Specifically, what central or peripheral cues are used?
- Was the source trustworthy (i.e., have authority, honesty, and likability)? Specifically, what was it about the person that made them appear to be honest, likable, and have authority?
- Did the ad use any other tricks of persuasion (e.g., reciprocity, That's-not-all, scarcity, etc.)
- How could you make this ad more persuasive?

Example stimuli

- Don’t Vote campaign with celebrity endorsements (the title is ironic).
  - A bunch of celebrities try to encourage people to vote. (Caution: this is the uncensored version which is clearly aimed at the college student demographic.)

- https://www.youtube.com/watch?v=0vtHwWReGU0&index=...
  - Easy Pour Infomercial
    - In this infomercial, the company uses several persuasion techniques to sell their product.

- https://www.youtube.com/watch?v=wv02aVW9-K4
  - Every Infomercial Ever
    - This is a parody of the above infomercial, with a voice-over of a person pointing out
all the obvious persuasion techniques used in the infomercial. This is probably best shown after the real infomercial, since it gives away some of the techniques you want students to identify on their own. (Caution: this video does use strong language.)

- [https://www.youtube.com/watch?v=Y-6QncKMf_Y](https://www.youtube.com/watch?v=Y-6QncKMf_Y)
- A similar version (from [http://jfmueller.faculty.noctrl.edu/crow/persuasion...](http://jfmueller.faculty.noctrl.edu/crow/persuasion...))

- Students critique a web site that attempts to persuade people (e.g., persuading people not to smoke). You can assign the website or let them find their own.
  - One possibility is to assign them to go to JoeChemo.org (an anti-smoking website) and have them interact on the site (take the quizzes, learn about Joe, etc.).
  - Once they have perused the website, have them evaluate how persuasive the website was (using similar prompts as above).

**Creating a Persuasive Ad: Out of Class or In-Class Activity**

- This activity can be done in or outside of class. For this activity, students will select a cause and create a persuasive ad using the principles used in class.
- Time: 15 minutes
- Materials: None
- Directions:
  - Have your students select a cause (or you can assign them one) and have them make an ad campaign that supports their cause. These campaigns may be social (e.g., persuading people to buy local or organic food; getting people to reduce their carbon emissions), political (e.g., persuading people to vote for a political candidate), or a public service announcement (e.g., stop texting and driving; prevent teenagers from smoking).
  - Design an advertisement for your cause that incorporates at least THREE of the persuasion tactics we discussed in class.
    - First, write a description of what your commercial or ad would look like (who is in the add, what are they doing, etc.).
    - After designing your ad, make sure to list and explain each tactic and how you applied
it in your ad.

**Additional Activities**


In this in-class activity, students identify various attitude change factors used in pretaped commercials and record their findings on a work sheet. The activity is appropriate for introductory and social psychology courses of any size. The activity employs small groups, so a classroom with moveable seats is helpful, but not essential. The instructor must record commercials (three are recommended) that illustrate various attitude change factors and prepare copies of a work sheet. The discussion of the message-learning approach to persuasion (Hovland's Yale model) in an introductory or social psychology text should provide sufficient coverage of the attitude change principles covered in the activity.

**Outside Resources**


Student Video 1: Kyle Ball and Brandon Do's 'Principles of Persuasion'. This is a student-made video highlighting 6 key principles of persuasion that we encounter in our everyday lives. It was one of the winning entries in the 2015 Noba Student Video Award. https://www.youtube.com/watch?v=Orkt0wiEGt4

Student Video 2: 'Persuasion', created by Jake Teeny and Ben Oliveto, compares the central and peripheral routes to persuasion and also looks at how techniques of persuasion such as Scarcity and Social Proof influence our consumer choices. It was one of the winning entries in the 2015 Noba Student Video Award. https://vimeo.com/123205124

Student Video 3: 'Persuasion in Advertising' is a humorous look at the techniques used by companies to try to convince us to buy their products. The video was created by the team of Edward Puckering, Chris Cameron, and Kevin Smith. It was one of the winning entries in the 2015 Noba Student Video Award. https://www.youtube.com/watch?v=B-UnkWGCKzU

Video: A brief, entertaining interview with the celebrity pickpocket shows how easily we can be fooled. See A Pickpocket's Tale at http://www.newyorker.com/online/blogs/culture/2013/01/video-the-art-of-pickpocketing.html

Video: Cults employ extreme versions of many of the principles in this module. An excellent documentary tracing the history of the Jonestown cult is the PBS “American Experience” production, Jonestown: The Life and Death of Peoples Temple at http://www.pbs.org/wgbh/amERICANexPERIENCE/features/introduction/jonestown-introduction/

Video: Philip Zimbardo’s now-classic video, Quiet Rage, offers a powerful, insightful description of his famous Stanford prison study http://www.prisonexp.org/documentary.htm

Video: The documentary Outfoxed provides an excellent example of how persuasion can be masked as news and education. http://www.outfoxed.org/

Suggestions from the Society for Teaching's Introductory Psychology Primer


POSSIBLE ASSESSMENTS (Out of Class) Persuasion
Ask students to locate examples of compliance strategies (e.g., foot-in-the-door, foot-in-the-face) and/or persuasive cues (e.g., central vs. peripheral cues) in magazines or online ads. (Students can locate examples outside of class and discuss in class for 10-15 minutes.) Discuss which strategies/cues employed are more persuasive.

Links to ToPIX Materials

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19981041/Social%20in%20the%20Classroom

Current events/news:
http://topix.teachpsych.org/w/page/23142325/Social%20in%20the%20News

Video/audio:
http://topix.teachpsych.org/w/page/19981040/Social%20Video

Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage
Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation

This module has an associated PowerPoint presentation. Download it at http://nobaproject.com//images/shared/supplementEditions/000/000/139/Persuasion:%20So%20Easily%20Fooled.ppt?1416599110.
The purpose of this unit is to help students understand what social psychology is, how researchers study it and understand social phenomena, and the applications of social psychology to students’ everyday lives.

The second module, Conformity and Obedience, provides an overview of two of the seminal studies in psychology (the Asch and Milgram studies) and discusses the psychological principles explaining why humans conform and obey, even when it is the wrong thing to do.

Learning Objectives

- Relevant APA Learning Objectives (Version 2.0)
  - Describe key concepts, principles, and overarching themes in psychology (1.1)
  - Develop a working knowledge of psychology’s content domains (1.2)
  - Describe applications of psychology (1.3)
  - Engage in innovative and integrative thinking and problem solving (2.3)
  - Build and enhance interpersonal relationships (3.3)
  - Interact effectively with others (4.3)
  - Apply psychological content and skills to career goals (5.1)
  - Exhibit self-efficacy and self-regulation (5.2)
  - Enhance teamwork capacity (5.3)

- Content Specific Learning Objectives: Conformity and Obedience
Become aware of how widespread conformity is in our lives and some of the ways each of us changes our attitudes and behavior to match the norm.

Understand the two primary reasons why people often conform to perceived norms.

Appreciate how obedience to authority has been examined in laboratory studies and some of the implications of the findings from these investigations.

Consider some of the remaining issues and sources of controversy surrounding Milgram's obedience studies.

**Abstract**

We often change our attitudes and behaviors to match the attitudes and behaviors of the people around us. One reason for this conformity is a concern about what other people think of us. This process was demonstrated in a classic study in which college students deliberately gave wrong answers to a simple visual judgment task rather than go against the group. Another reason we conform to the norm is because other people often have information we do not, and relying on norms can be a reasonable strategy when we are uncertain about how we are supposed to act. Unfortunately, we frequently misperceive how the typical person acts, which can contribute to problems such as the excessive binge drinking often seen in college students. Obeying orders from an authority figure can sometimes lead to disturbing behavior. This danger was illustrated in a famous study in which participants were instructed to administer painful electric shocks to another person in what they believed to be a learning experiment. Despite vehement protests from the person receiving the shocks, most participants continued the procedure when instructed to do so by the experimenter. The findings raise questions about the power of blind obedience in deplorable situations such as atrocities and genocide. They also raise concerns about the ethical treatment of participants in psychology experiments.

**Class Design Recommendations**

This module of social can be taught in a single class period or less, with the unit as a whole taking 2-3 class periods. Please also refer to the Noba PowerPoint slides that compliment this outline.

1st class period (20 min – 30 min):
• Conformity

  ◦ Defining Conformity
  ◦ Asch's Conformity study
    ▪ Describe Asch's seminal study (show video of original or updated)
    ▪ Findings: increase in conformity with more confederates (up to about five), teenagers are more prone to conforming than are adults, people conform significantly less often when they believe the confederates will not hear their responses, and conformity is more likely in collectivist countries than in individualistic countries
  ◦ Why do people conform?
    ▪ Informational influence
    ▪ Normative Influence

• Obedience

  ◦ Defining obedience
  ◦ Milgram's obedience study
    ▪ Describe seminal study (show original footage or clip from updated)
    ▪ Findings: An alarming percent of people conform to authority

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**Module Outline**

**Conformity**

• Conformity is the tendency to act and think like the people around us.
• What causes this conformity?
To start, humans may possess an inherent tendency to imitate the actions of others. Although we usually are not aware of it, we often mimic gestures, body posture, language, talking speed, and many other behaviors.

Normative Influence. When normative influence is operating, people go along with the crowd because they are concerned about what others think of them (we want to avoid criticism or experience rewards such as compliments or camaraderie). This is demonstrated by Asch’s seminal study on conformity, which also provided some influences on conformity (e.g., an increase in conformity with more confederates (up to about five), that teenagers are more prone to conforming than are adults, people conform significantly less often when they believe the confederates will not hear their responses, and conformity is more likely in collectivist countries than in individualistic countries).

Informational influence (we go along with the crowd because people are often a source of information). When the situation is unclear, we use descriptive norms to guide our behaviors. However, it’s not always easy to obtain good descriptive norm information, which means we sometimes rely on a flawed notion of the norm when deciding how we should behave.

Obedience

- Obedience refers to how people react when given an order or command from someone in a position of authority. In many situations, obedience is a good thing. But, there is also a dark side to obedience. In the name of “following orders” or “just doing my job,” people can violate ethical principles and break laws. This was demonstrated by Milgram’s seminal study on participant obedience to authority.

Conclusion

- Social psychologists are fond of saying that we are all influenced by the people around us more than we recognize. Of course, each person is unique, and ultimately each of us makes choices about how we will and will not act. But decades of research on conformity and obedience make it clear that we live in a social world and that—for better or worse—much of what we do is a reflection of the people we encounter.
Difficult Terms

Conformity
Descriptive Norms
Informational Influence
Normative Influence

Lecture Frameworks

Overview

Conformity and obedience are represented by two of the most well-known studies in psychology: the Asch & Milgram studies. So incorporating these studies into the lecture is important for a survey course like Introductory Psychology.

First Class Period

Conformity

• Optional Activity: Standing in the Hallway
  ○ This activity should be done right before class starts. This activity is designed to elicit conformity from students (based off Lawson, Haubner, & Bodle, 2013). See Activities/Demonstrations (below) for instructions.

• Discussion/Warm-Up
  ○ Starting off any unit (especially the social psych topics) with a few questions is always a fun way to get students thinking about the material and reflecting on their own behaviors. Questions you might ask your students – Do you buy name brand products even if there is a cheaper store brand? Would you be willing to stop and help someone, even if no one else was willing to help them? If you were assigned to a group project, would you speak up if you thought your group members were wrong? Would you change your answer on an assignment if everyone else had a different answer?
  ○ As you probably suspect, most people (including students) tend to underestimate how often they conform – their answers to these questions typically reflect as much. That's
what makes this an interesting starting point – people conform, but often have no idea that they are conforming (even when it's pointed out!).

• Lecture – Refer to slides for the following:
  ◦ To explain Conformity. In particular, you can focus on definitions, the role of normative influence and the consequences of conformity (e.g. Acceptance by others)

• Activity – Asch’s Conformity Study
  ◦ Once you've got their first impressions about conformity and formally defined the concept for them, you can walk them through the Asch experiment(s). You can do this via explanation or video (there are some updated videos that are higher quality than the original experiment, but that is up to you). One video you might consider showing is this one: https://www.youtube.com/watch?v=TYIh4MkcfjA&index=32&list=PL281D8BB116DEFEDC.
  ◦ It's an old clip, so the quality is pretty low compared to new replications, but this video has a few good points: 1) It demonstrates the essence of conformity, 2) It discusses conditions under which conformity is more likely (unanimity, group size, anonymity, etc.), 3) It illustrates examples of normative and informational influence, and 4) It captures the idea that most people do not recognize the role that other people play in our decision making process (it shows that when just one other confederate disagrees with the group, conformity drops dramatically. Yet participants claim that the other person had absolutely zero impact on their decision to conform).

Obedience

• Discussion/Warm-Up
  ◦ As with conformity, you can start talking about obedience by taking a quick poll of your students (Would you be willing to hurt a puppy if told to do so? How likely are you to harm a human if told to do so? How likely are you to follow orders, even if you don't agree with them?). The vast majority of students believe that they could never hurt anyone or anything just from being told to do so. Which makes this unit extra special: You get to explain how normal, generally compassionate people are capable of doing things they would never do on their own, simply due to the power of obedience.
  ◦ You might use examples like Pol Pot and Hitler – under their leadership, they committed
heinous acts of genocide. The thing is, they didn’t do it single-handedly; they figured out how to use other people to do their bidding (even when those same people did not agree with it). THAT is the essence of this topic – why do normal people commit atrocious acts?

• Lecture – Refer to slides for the following:

  ○ To explain Obedience. Now that you’ve set the (slightly dramatic) stage, walk students through the (in)famous Milgram study, one step at a time. You might show them clips of the classic study or an updated version (e.g., Derren Brown: https://www.youtube.com/watch?v=y6GxluljT3w ).
  ○ Once they know what the experiment was about, you can talk about the implications of obedience (e.g., the prank caller who convinced managers at fast food restaurants that he was the police and “forced” the managers to engage in despicable acts; or when two special education students were wrongfully delivered dozens of punishing electrical shocks based on a prank phone call from a former student posing as a supervisor).

• Activity: Build a Study

  ○ This can be completed in or outside of class, individually, or in small groups (whatever works for your classroom). This activity is designed to help students understand concepts from the module, as well as reinforce concepts from the research methods unit (based on Bleske-Rechek, 2001). See Activities/Demonstrations (below) for instruction.

Activities & Demonstrations

Standing in the Hallway: In-Class Activity

This activity should be done right before class starts. This activity is designed to elicit conformity from students (based off Lawson, Haubner, & Bodle, 2013). Note: This activity may not work if there are multiple doors to your classroom. Please consider such factors carefully before using this activity.

• Time: 2 minutes (plus any discussion)
Materials: None, though this demonstration should be done BEFORE you talk about conformity (otherwise students might catch on)

Directions:

◦ Several minutes before class (10-12), ask a few students (at least three or four) who show up early to class to stand outside in the hallway without going into the classroom (these students are your confederates).

◦ Leave the lights on in the classroom, close the door, and instruct the confederate students to talk with one another (to prevent the other students from asking questions), and go back to your office (or at least remain out of sight). If you want to make sure that students conform, have your confederates sit or stand very close to the doors or to lean on them (effectively blocking them; other students will be less likely to try and open the doors themselves).

◦ Wait until approximately 2 min prior to class time to return to the classroom. When you finally arrive at the room, you will likely see all of the students standing in the hallway.

◦ You can then ask why they were all standing out in the hallway when they could have been sitting comfortably in their seats in the classroom. Ask them to explain their behavior – did they try to open the door? Why or why not? How did they make the decision to wait outside?

Bonus Application

◦ Later in class (once you have formally talked about conformity), ask the students to write down two examples of how they have conformed recently. If they share their responses with the class and nobody mentioned their conformity in the hallway, go ahead and point it out.

◦ After defining and giving examples of normative social influence (e.g., conforming in order to be accepted by others) and informational social influence (e.g., conforming because others provide information about the correct behavior), ask the students which type of social influence their behavior in the hallway illustrated.

Design a Study: In or out of class activity

This can be complete in or outside of class, individually, or in small groups (whatever works for your classroom). This activity is designed to help students understand concepts from the module, as well as reinforce concepts from the research methods unit (based on Bleske-
• Time: 15-20 minutes
• Materials: Students will need paper
• Directions:
  ◦ After discussing conformity and obedience, divide the class in half (half are assigned obedience, half are assigned conformity).
  ◦ Then give students the following instructions: It’s been 50 years since these studies on conformity/obedience. Imagine that you a researcher who wants to know if the results would be the same today as they were 50 years ago. In your group, pick a context where you might test conformity/obedience (e.g., criminal behavior, texting while driving, drunk driving, college student alcohol use, cheating on exams, hazing, gang related behavior, work behavior, being on an athletic team, police officers, etc.). Using your selected context, design a study that tests whether obedience/conformity has an influence on behavior.

**Additional Activities**


• This article provides 9 quick demonstrations that illustrate students own vulnerability to conformity. The activities range from elucidating Milgram’s classic obedience study to Jane Elliot’s Blue Eye/Brown Eye demonstration as well as the self-fulfilling prophecy. This is a great start to actively teach students about the power of social influence.

**Outside Resources**

Student Video: Christine N. Winston and Hemali Maher’s 'The Milgram Experiment' gives an excellent 3-minute overview of one of the most famous experiments in the history of
psychology. It was one of the winning entries in the 2015 Noba Student Video Award.
https://www.youtube.com/watch?v=uVIUZwkM_G0

Video: An example of information influence in a field setting
http://www.youtube.com/watch?v=4yFeaS60nWk

Video: Scenes from a recent partial replication of Milgram's obedience studies
http://www.youtube.com/watch?v=HwqNP9HRy7Y

Video: Scenes from a recent replication of Asch's conformity experiment
http://www.youtube.com/watch?v=VgDx5g9ql1g

Web: Website devoted to scholarship and research related to Milgram's obedience studies
http://www.stanleymilgram.com

Evidence-Based Teaching


Describes an obedience demonstration for the 1st day of social psychology courses that introduces social psychology. On the 1st day of an undergraduate psychology course (N=29), a 27-yr-old male graduate student confederate with whom students were unfamiliar entered the room and requested that students fill out a "Student Information Sheet" listing personal data. The confederate collected the forms, asked all students to stand and face the back of the room, then left the room. After about 3 min, the professor entered the room and asked students about their behavior. The demonstration shows that when students came to believe that a confederate was the course instructor, they complied with his request to provide him with personal information. Subsequent lecture introduced students to several key concepts, including obedience, stereotyping, conformity, mindlessness, deception, and research ethics. Students indicated they found the demonstration enjoyable, interesting, informative, and a worthwhile use of class time. Furthermore, students agreed that because of the demonstration, they looked forward to taking the course. Although the demonstration employed deception, students indicated that it was justified and that they were treated in an ethical manner.
Suggestions from the Society for Teaching's Introductory Psychology Primer


POSSIBLE ASSESSMENTS (Out of Class)Mini-Research Project:

- Ask students to develop a hypothesis regarding human interaction based on theories of social influence (e.g., if students in a group express the same opinion, then the last student to speak will conform to fit in). Second, gather empirical data from observations of people in naturalistic environments (e.g., classroom, sporting event, mall). Write a mini-research report with methods, results and discussion sections.

ACTIVITIES & TECHNIQUES (In Class)Original Footage

- Students often enjoy watching original footage from the classic social influence studies and many students report remembering these studies in future courses.
- Quiet Rage discusses Stanford Prison study: a brief clip can be found here: http://www.youtube.com/watch?v=760lwYmpXbc
  - The video in entirety is 29 minutes but you can show the first 5-7 mins).
- Footage from the Milgram study can be found here: http://www.youtube.com/watch?v=W147ybOdgpE (9 min).
  - Before showing this clip, ask students by show of hands how many would go all the way to 450 volts. Rarely one or two students may bravely raise their hand.
  - In the set-up to this video, it is also important to emphasize that Milgram himself thought only 1% would go all the way. This can also lead to a discussion of research ethics and the IRBs.
Links to ToPIX Materials

Activities, demonstrations, handouts, etc.:
http://topix.teachpsych.org/w/page/19981041/Social%20in%20the%20Classroom

Current events/news:
http://topix.teachpsych.org/w/page/23142325/Social%20in%20the%20News

Video/audio:
http://topix.teachpsych.org/w/page/19981040/Social%20Video

Teaching Topics

Teaching The Most Important Course
http://nobaproject.com/documents/1_Teaching_The_Most_Important_Course.pdf

Content Coverage

Motivating Students

Engaging Large Classes

Assessment Learning
http://nobaproject.com/documents/5_Assessment_Learning.pdf

Teaching Biological Psychology

PowerPoint Presentation