Eyewitness Testimony and Memory Biases

Instructor Manual

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This 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 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

Charlton, S. (1999). Do you see what I see?: Examining eyewitness testimony. In L. T. Benjamin, B. F. Nodine, R. M. Ernst, C. Broeker (Eds.) , Activities handbook for the teaching of psychology, Vol. 4 (pp. 194-199). Washington, DC, US: American Psychological Association.

- 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.

Gee, N. R., & Dyck, J. L. (1998). Using a videotape clip to demonstrate the fallibility of eyewitness testimony. *Teaching of Psychology*, 25(2), 138-140. doi:10.1207/s15328023top2502_18

- 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

Stiegler-Balfour, J. J. (2013). Memory. In S.E. Afful, J. J. Good, J. Keeley, S. Leder, & J. J. Stiegler-Balfour (Eds.). *Introductory Psychology teaching primer: A guide for new teachers of Psych 101*. Retrieved from the Society for the Teaching of Psychology web site: http://teachpsych.org/e-

books/intro2013/index.php

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.
- Possible articles include Loftus, E.F. (1975). Leading questions and the eyewitness report. *Cognitive Psychology*, 7, 560-572 and Tolman, E.C. (1948). Cognitive maps in rats and men. *Psychological Review*, 55, 189-208.

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

- Introduce chapter with Barry Gordon's Forgetting Questionnaire to demonstrate how common forgetting is (See Gordon, B. (1995). Memory: Remembering and forgetting in everyday life. New York: Mastermedia Limited

    - 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 https://nobaproject.com//images/shared/supplement_editions/000/000/285/Eyewitness%20-Testimony%20and%20Memory%20Biases.pptx?1416598863.

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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