

Myth: Eyewitness Testimony is the Best Kind of Evidence

August 20, 2018



SUGGESTED LESSON PLAN

Eyewitness testimony is historically among the most convincing forms of evidence in criminal trials (e.g. Benton, Ross, Bradshaw, Thomas, & Bradshaw, 2006). Probably only a suspect's signed confession can further convince a jury about that individual's guilt. That iconic moment when a testifying witness points to the defendant as the perpetrator of the crime is iconic, and has been dramatized often on television and movies. It is easy to understand why it is so convincing. We trust our own perception and experience. "I'll believe it when I see it" isn't just a cliché, it is a statement of the most persuasive form of evidence we allow.

But being convincing isn't the same as being accurate. Eyewitness testimony is more fallible than many people assume. The advent of DNA analysis in the late 1980s revolutionized forensic science, providing an unprecedented level of accuracy about the identity of actual perpetrators versus innocent people falsely accused of crime. DNA testing led to the review of many settled cases. According to the [Innocence Project](#), 358 people who had been convicted and sentenced to death since 1989 have been exonerated through DNA evidence. Of these, 71% had been convicted through eyewitness misidentification and had served an average of 14 years in prison before exoneration. Of those false identifications, 41% involved cross-racial misidentifications (221 of the 358 people were African

American). And 28% of the cases involved a false confession.

The claim that eyewitness testimony is reliable and accurate is testable, and the research is clear that eyewitness identification is vulnerable to distortion without the witness's awareness. More specifically, the assumption that memory provides an accurate recording of experience, much like a video camera, is incorrect. Memory evolved to give us a personal sense of identity and to guide our actions. We are biased to notice and exaggerate some experiences and to minimize or overlook others. Memory is malleable.

View the full collection: [Busting Myths in Psychological Science](#)

Why the Myth Persists

So why, despite all the news about misidentifications and wrongful convictions, do people continue to put such profound faith in eyewitness testimony?

Several reasons are likely. First, in popular media and literary depictions, detectives (for example, Sherlock Holmes) and witnesses possess highly detailed and accurate memories. Second, crimes and accidents are unusual, distinctive, often stressful, and even terrifying events, and people believe those events therefore should automatically be memorable. In fact, stress and terror can actually inhibit memory formation, and memories continue to be constructed after the originating event on the basis of information learned afterward. People underestimate how quickly forgetting can take place. Third, eyewitnesses are often sincere and confident, which makes them persuasive but not necessarily correct. Memory distortion often happens unconsciously. Witnesses truly believe their version of events, no matter how inaccurate they may be.

Finally, confirmation bias is likely at play. People notice the times when they accurately remembered some person or detail in their past, but tend to forget the times when their memory failed them. With the prevalence of video cameras capturing most anything we do, it is easier than ever to check memories against actual recordings of events. You might ask students if they ever compared their memory of an event to an actual recording of the incident and discovered discrepancies. If so, this might reduce confirmation bias.

The Reality

Memory doesn't record our experiences like a video camera. It creates stories based on those experiences. The stories are sometimes uncannily accurate, sometimes completely fictional, and often a mixture of the two; and they can change to suit the situation. Eyewitness testimony is a potent form of evidence for convicting the accused, but it is subject to unconscious memory distortions and biases even among the most confident of witnesses. So memory can be remarkably accurate or remarkably inaccurate. Without objective evidence, the two are indistinguishable.

Related Myths

- People won't confess to a crime they did not commit.
- Flashbulb memories, vivid and emotionally compelling memories of the circumstances of learning about a subjectively important event, are more accurately remembered than mundane

memories.

- Accurate memories can be recovered or enhanced through hypnosis
- We repress traumatic childhood memories but these memories can be recovered through therapy and they should be taken as valid and accurate ([see the lesson plan on this myth.](#))
- Lie detector tests reliably detect deception
- Children make good eyewitnesses

Video Resources

[How reliable is eyewitness testimony?](#) National Science Foundation (3:59).

Eyewitness testimony — it's often thought of as solid evidence in criminal cases, but researchers including Iowa State University's Gary Wells have found that our memories aren't as reliable as we think. Sometimes, we can even build false recollections about people we only think we saw.

[How reliable is your memory?](#) | A TED talk by Elizabeth Loftus (17:36).

Psychological scientist Elizabeth Loftus studies memories. More precisely, she studies false memories, when people either remember things that didn't happen or remember them differently from the way they really were. It's more common than you might think, and Loftus shares some startling stories and statistics, and raises some important ethical questions we should all remember to consider. Find closed captions and translated subtitles in many languages at <http://www.ted.com/translate>

[60 Minutes: Eyewitness Testimony Part 1](#) (13:00)

[60 Minutes: Eyewitness Testimony Part 2](#) (13:06)

A two-part *60 Minutes* news story focusing on the case of Ronald Cotton and Jennifer Thompson, one of the best documented cases of false conviction. Extensive interviews with the people involved in the case as well as Elizabeth Loftus and Gary Wells.

Web Resources

[Why Science Tells Us Not to Rely on Eyewitness Accounts.](#) *Scientific American Mind*

[Website of Dr. Gary Wells](#), who has done extensive research on the validity of police line-ups. His website is a wealth of information, links, and videos.

[Eyewitness Testimony and Memory Biases.](#) Teaching unit for Noba Project by Cara Laney and Elizabeth F. Loftus.

[Police Are Changing Lineups to Avoid False IDs.](#) Michael Ollove, Pew Charitable Trust, Posted July 13, 2018.

References:

Benton, T. R., Ross, D. F., Bradshaw, E., Thomas, W. N., & Bradshaw, G. S. (2006). Eyewitness memory is still not common sense: comparing jurors, judges and law enforcement to eyewitness experts.

Applied Cognitive Psychology, 20, 115–129. doi: 10.1002/acp.1171

Hastorf, A. H., & Cantril, H. (1954). They saw a game; a case study. *The Journal of Abnormal and Social Psychology*, 49(1), 129-134. doi: <http://dx.doi.org/10.1037/h0057880>

Loftus, E. F. (2005). Planting misinformation in the human mind: A 30-year investigation of the malleability of memory, *Learning & Memory*, 12, 361- 366. 2005 Jul 18. doi: 10.1101/lm.94705

Zaragoza, M. S., Belli, R. F., & Payment, K. E. (2007). Misinformation Effects and the Suggestibility of Eyewitness Memory. In M. Garry & H. Hayne (Eds.), *Do justice and let the sky fall: Elizabeth Loftus and her contributions to science, law, and academic freedom* (pp. 35-63). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

DAY 1

An Introduction to Remembering

Assign [Activity 1](#) below before the class meeting. Students may bring responses to class or post them online. Begin by posing the myth, shown on Slide 1 of the accompanying PowerPoint slides.

[Eyewitness Testimony slides](#)

Next discuss the assignment. I've summarized the study in Slide 2 and have graphed sample findings in Slides 3 and 4. Have students discuss their responses. It should become clear that people's memories are shaped by their biases and expectations; they are not an objective reflection of what happened. Different people can see the same event and come away with very different memories. Frederic Bartlett, the pioneering cognitive psychologist, talked about "remembering" as an active process as opposed to having a static memory that one stored and retrieved. This is a good entry point to discuss the nature of long-term memory and how it is both constructive (at encoding) and reconstructive (at retrieval). The instructor can discuss work on the misinformation effect and eyewitness testimony here. Schema theory can also be discussed. Slides 5 and 6 review the myth and the reality of memory. [Assign Activity 2 \(see below\)](#) to reinforce today's discussion.

DAY 2

An Overall Introduction to Memory

Go over the results of Activity 2 and see how accurate students' memories of the event were. Remind them that memories can be accurate or inaccurate; the problem is that we can't distinguish between the two. The goal of this day is to give an overview of how memory works. I've provided a concept map of different memory concepts in Slide 7. There are various ways of organizing the memory unit: historically from Ebbinghaus to current models, or focusing on a particular model such as Information processing (almost 50 years out of date, but still a powerful way of organizing concepts). Select an organization that makes it easiest for you to discuss key memory concepts.

DAY 3

Applications of Memory Research

This session can be used to finish the overview of memory that began on Day 2. Use Activity 3 (see below) to show how quickly and easily memory can be distorted. The balance of the class time can be spent discussing applications of memory research. Possible topics are listed in the concept map on Slide

7. All of these topics have important implications. Students often appreciate learning how to leverage memory research to improve their study habits because it directly relates to their current experience. Instructors may want to refer students to my video series on how to study effectively (www.samford.edu/how-to-study).

Concept Checks

The following formative assessment questions allow both you and the students to gauge their level of understanding of the unit. Be sure to have students respond individually so both you and they can see how well the class understands the concepts. Then they can discuss as pairs or as a class. There are a variety of high tech (clickers) and low-tech (fingers) methods that can be used to administer these concept check questions.

[table id=13 /]

Answer: c.

[table id=14 /]

Answer: a.

[table id=15 /]

Answer: d.

[table id=16 /]

Answer: a.

Activity 1

How Bias and Expectations Shape Perception and Memory

For this assignment, you will listen to an [excerpt from a podcast that tells the story of the most famous football game in psychology](#). What makes it famous? You will have to listen to find out, but it is directly relevant to our next unit. Below is the link to the podcast. Start and end at the designated times. Of course, you are welcome to listen to the second half as well if you are interested.

Start at 3:40 minute mark, listen to 15:00 minute mark.

Reflection questions

Write a paragraph in reflection to each question. Bring your reflections with you to class. We will be discussing them.

1. Think of a time when you experienced an event, in sports or any other area, similar to the Dartmouth-Princeton game where two or more groups of people watched the same event with great passion and then came to completely different conclusions about what happened? If you

can't think of one from your own experience, describe an event that you know about that is similar.

2. How would the memories of the people in the two groups differ? Could they ever agree on what happened? If asked to give testimony under oath, would the accounts of the various groups agree? What does this say about our ability to objectively remember events?
3. What are the implications of the phenomenon described in the podcast for people trying to find common ground who belong to different cultural or ethnic groups, political parties, or religions? Have you ever had a discussion with someone you disagree with and it seems like you each are talking past each other? If so, describe it.

Activity 2

Eyewitness Memory Activity

This activity introduces students to the challenge of accurate eyewitness testimony and the misinformation effect. The students will watch a video of a bicyclist assisting police in chasing a thief. They will then be asked questions about the video. Some of the questions contain misleading post-event information (MPI). Then, students are asked about the presence or absence of certain details in the video, some of which are present and some of which are absent. Students can see their results, and the class results can also be compiled.

This activity follows a typical misinformation effect paradigm: subjects witness an event, are introduced to a mix of accurate and inaccurate post-event information, then tested for the accuracy of their memories of the event. The MPI is introduced through leading questions. The activity is set up as a 2×2 factorial design. In the post-event information, half the items mentioned were present in the video and half were not. Then during the detailed recall portion, half of the items listed were also listed in the post-event information and half were not. There are four groups:

- item present in video/item mentioned in post-event information;
- item absent in video/item mentioned in post-event information;
- item present in video/item not mentioned in post event information; and
- item absent in video/item not mentioned in post-event information.

Each cell contains five items. In addition, there are six filler questions in the post-event information; all refer to details that were present in the video.

The 2×2 factorial design allows teachers to compute hits, misses, false alarms, and correct rejections. A hit would be a *yes* response to an item present in the video. A false alarm is a *yes* response to an item that was not in the video. A miss is a *no* response to an item in the video. A correct rejection is a *no* response to an item not in the video.

Compare the mean number of *yes* responses for each of the four categories. False alarms and misses represent faulty memory and inaccurate eyewitness testimony. Did MPI increase the hit rate or the false alarm rate? The findings should be a good discussion starter for the malleability of memory and the difficulty of accurate eyewitness testimony.

Here is the key to the video, post-event information, and the memory test. At the end are the sheets that should be provided to students for the activity. You may want to add filler tasks, like a word search or some other activity, between seeing the video, taking the post-event questionnaire, and taking the detail memory test.

Teacher Instructions and Key to the Activity

Overview of Steps in the Activity

1. Students will watch [a video of a bicyclist chasing a thief](#).
2. Students will answer a series of questions about the video. Some of the questions will introduce misleading information by suggesting certain items were in the video that were not actually present
3. Students will take a test of their memory for the video. In this test, there will be four kinds of items: (a) items present in the video and mentioned in the follow-up questionnaire; (b) items present in the video and NOT mentioned in the questionnaire; (c) items NOT present in the video but mentioned in the follow-up questionnaire; and (d) items NOT present in the video and NOT mentioned in the follow-up questionnaire

Step by Step Instructions and Guide

The complete [handouts](#) students will use for this activity follows these instructions.

- I. Students will watch the video, [Helping with a Police Chase](#), and read the summary

Summary: In this video, a bicyclist comes upon policemen chasing a thief. The cyclist joins the chase down a busy road, through a neighborhood, and into alleyways, catching up to and confronting the thief a couple of times. Eventually, the thief sheds a coat and jumps a wall to escape. The cyclist gathers up clothing and finds the police. He tells the officers the direction the thief took and gives them the clothing.

- II. Students will complete the follow-up questionnaire. Here is the Question Set with key. Some items are filler, some refer to items actually present in the video (Present), and some refer to items that were not in the video (Absent). The set of questions without the key that you will give to the students comes after the scoring guide.

Questionnaire about the Video (Key)

For each statement below, Circle **Yes** if you witnessed it in the video or **No** if you DID NOT witness it in the video.

1. Did you notice the large bike emblem painted in the middle of the road? (Filler)
2. Did you see "Bus Stop" printed on the road? (Present)
3. Did you see the yellow boxes on the poles? (Filler)
4. Did you notice the dog on a leash that was barking? (Present)
5. Did you see the policeman come back to pick up the flashlight he dropped while running?

(Absent)

6. Did you see the woman standing at the bus stop shelter? (Filler)
7. Did you notice the large truck parked on the sidewalk that the thief and the cyclist both passed by? (Present)
8. Did you notice that both officers were wearing vests that identified them as policemen? (Absent)
9. Did you see the cyclist drive past the yellow fire hydrant before turning into the driveway of the house? (Absent)
10. Did you notice the house entrance that the thief ran past with the statues in front? (Absent)
11. Did you see the thief stop and rest against a tree? (Filler)
12. Did you clearly see the face of the thief even though he had the hood of his hoodie pulled up? (Present)
13. Did you hear the cyclist tell the thief to “Give it up, mate?” (Filler)
14. When the cyclist confronted the thief, did you notice the holes in the knees of his blue jeans? (Absent)
15. When the cyclist returned the clothing to the officer, did you notice the iron gate to the park? (Present)
16. Did you hear the policeman thank the cyclist for returning the clothing? (Filler)

III. Students will now answer *Yes* or *No* for a list of items. They answer *Yes* if the item was in the original video and *No* if it was not. Here is the Key in both list and table format.

Memory for Details (Key)

For each item or detail, circle **Yes** if you witnessed it in the video or **No** if you DID NOT witness it in the video.

1. “Bus stop” was printed in road **Yes**
2. There were crisscrossing lines in the intersection **Yes**
3. A mom with small child riding a bicycle **Yes**
4. A flashlight **No**
5. There was a water bottle in a holder on the bike **No**
6. A woman in blue jacket held a barking dog on a leash **Yes**
7. The officers wore vests identifying them as policemen **No**
8. A large truck parked on the sidewalk **Yes**
9. Pigeons got out of the way of the thief and cyclist **No**
10. A yellow fire hydrant **No**
11. A motorcycle passed by the cyclist chasing the thief **No**
12. A matching pair of statues in front of a house **No**
13. The thief was wearing blue jeans **No**
14. A rear view mirror on the cyclist’s bike **Yes**
15. The thief was wearing a hoodie **Yes**
16. There was a white shirt on ground **Yes**
17. The thief had something like a water bottle dangling from his waist **Yes**
18. There was a red mailbox **No**
19. There was a man sitting at a table **No**

20. Iron gate by the park **Yes**

[The student handouts are available here.](#)

Here is a table that shows the condition of the various items and details. The question number is in parentheses. Use this table to determine the number correct in each of the four conditions. Find the average for each condition.

[table id=10 /]

Activity 3

In-Class Memory Activity

Tell students they will take a memory test. They will listen as you read them a list of 15 words, at a rate of about one word every 5 seconds. They may not write down any of the words as you say them. When you give the signal, the students should write down as many of the words as they can recall in any order.

- Thread
- Pin
- Eye
- Sewing
- Sharp
- Point
- Prick
- Thimble
- Haystack
- Thorn
- Hurt
- Asteroid
- Injection
- Syringe
- Cloth
- Knitting

Now recall all the words you can, in any order

This activity demonstrates several memory concepts. It doesn't matter how many words students remember. You want to check to how many students recalled certain words. For these words, have students raise their hands if they recalled them.

Thread: tests for Primacy Effect

Knitting: tests for Recency Effect

Asteroid: It was a distinctive word that did not fit in with the meaning of the rest of the words. This

demonstrates the von Restorff effect.

Needle: You should get a large percentage of the class recalling this word even though it was not on the list. You can show the students the whole list and ask them where they heard it. This is the well-known DRM effect (Roediger & McDermott, 1995) and it demonstrates how quickly and unconsciously memory can be distorted under the right conditions. It also shows the role of schema in guiding recall. (Note: I did not develop this demonstration. A number of variations exist.)

Roediger, H. L., & McDermott, K. B. (1995). Creating false memories: Remembering words not presented in lists. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 21(4), 803-814. <http://dx.doi.org/10.1037/0278-7393.21.4.803>