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Lesson Plan: Reconstructive Memory, Eyewitness Testimony, and Cognitive Biases

National Standards for High School Curricula

- **Social Cognition Content Standard 1.3:** Explain how attitudes, biases, and beliefs affect behavior and relationships with others.
- **Memory Content Standard 2.2:** Describe memory as a reconstructive process.

Day 1: Reconstructive Memory and Eyewitness Testimony

Day 1 Objective: Students will evaluate how the reconstructive nature of memory, misinformation, and schemas impact the accuracy of eyewitness testimony.

Prior Knowledge:

This two-day lesson would be situated in the context of a larger unit on Memory. It would be helpful to assign the section in your textbook on eyewitness testimony as homework to provide students with some background knowledge in preparation for this lesson.

Alternatively, you could ask students to read this article by Cara Laney and Elizabeth Loftus if your textbook doesn't have a section on eyewitness testimony: <https://nobaproject.com/modules/eyewitness-testimony-and-memory-biases>

Opening Demo Directions: Eyewitness Memory*

1. This demo is designed to be conducted in small groups of 2-4 students. Ask each group to determine who wants to play the role of the eyewitness. All other group members will be the police investigators.
2. Ask all students who are not playing the role of eyewitness to face away from the board. Announce that you will be displaying a fake crime scene on the board for ten seconds. It is the job of the eyewitness to study the scene and try to remember as much as they can. They are not allowed to verbally discuss details of the scene or write anything down during this time. You should then display the image for ten seconds.
3. Once the ten seconds have passed, remove the image of the crime scene and ask the police investigators to turn back around. Pass out a set of questions for each group. The police investigators should ask each question and record the details that the eyewitness provides.
4. The easiest way to debrief this activity is to go question by question and have each group share out the response from their eyewitness.
5. Reveal the image of the crime scene to the full class and conduct a discussion using the following questions as a guide:
 - Do you see any major details that the eyewitness failed to mention?
 - What were some of the biggest inconsistencies among the descriptions from the different eyewitnesses?
 - Where did you see the highest degree of consistency among the answers?
 - How confident was your eyewitness in their descriptions? Did their confidence level correlate with their accuracy?
 - How might stress or pressure impact memory recall in situations like this?
 - For the eyewitnesses, how did the description of the crime from the police investigator impact your recollection of the scene?

***Activity Inspiration:** https://www.americanbar.org/groups/public_education/publications/insights-on-law-and-society/volume-18/insights-issue-2---vol-18/lesson-three---are-you-a-good-eyewitness/

Note: The activity on the website above served as the inspiration for this demo, but all handouts and discussion questions included in the lesson plan were self-created.

Original Image Source: <https://csi.webadventures.games/en/For-Educators/OA/Test-Your-Memory-Begin.html>

Note: The original image contained an actor who played the role of a human victim of a crime. I used photoshop to remove the actor, as it might be distressing for students to see a human victim.

Elizabeth Loftus Video Clip

1. Hand out a copy of the questions that go with the video clip on Memory Malleability to each student. Ask them to individually answer the questions as they watch.
2. Show Memory Malleability, Dr. Elizabeth Loftus (runtime 5:42)
 - <https://www.youtube.com/watch?v=4Ey7MBiDVH8>
3. Debrief the questions with the students before moving on to the second demo.

Demo Directions: Role of Schemas in Memory

1. Pick a crime for students to write about from the list below.
 - **Scenario Examples:**
 - Describe what you think happens in a typical bank robbery.
 - Describe what you think happens when a priceless piece of art is stolen from a museum.
 - Describe what you think happens when a gas station convenience store is robbed.
2. This demo is designed to be conducted in small groups of 2-4 students. Provide every group with a student handout for this activity and ask them to script out what they think might happen during this crime. I encourage students to include details about the scene, perpetrators, dialogue, etc. Students will have 10 minutes to write and should work collaboratively during this time.
3. Ask each group to verbally share out their descriptions with the class.
4. Conduct a discussion using the following questions as a guide:
 - What similarities did you notice between the descriptions?
 - When you were scripting out the crime as a group, what served as your inspiration for the details or dialogue that you included?
 - Define the term “schema” for students and students to determine how schemas may have played into their depiction of the crime.
 - How might schemas play a role in eyewitness reconstructive memory?

Exit Ticket:

1. Distribute a copy of the exit ticket questions to each student.
2. When students have individually answered each of the questions, collect and evaluate their responses to determine their understanding of the lesson’s key concepts.

Crime Scene Demo



Police Investigator Questions

Directions: please ask your eyewitness each of these questions and write down their answers in detail. You should be prepared to share these responses with the class.

1. What time of day did you enter the office?
2. A large number of tests were stolen from the office on the day in question. Did you see any signs at the scene that might indicate that this theft took place?
3. Were there any signs of forced entry into the office?
4. What other details do you recall seeing at the scene?
5. Did you see a perpetrator? If so, describe the individual in detail.
6. On a Likert scale from 1-10 (1 being not confident, and 10 being extremely confident) how confident are you in the accuracy of your memory of the crime scene?

Name: _____

Video Clip: The Malleability of Memory (Dr. Elizabeth Loftus)

Directions: as you view the video, please respond to the questions below.

Link to Video Clip: <https://www.youtube.com/watch?v=4Ey7MBiDVH8>

1. What does Elizabeth Loftus mean when she argues that memory is a constructive process?
2. How do leading questions contaminate a witness' memory?
3. Aside from leading questions, what are some other ways that a witness' memory of an event may become contaminated?
4. Describe how rich false memories were created in the Lost in the Mall study and other similar studies on false memories.

Name: _____

Schema Memory Demo

Directions: based on the scenario given to you by your teacher, script out what you think would happen during this crime in the space below. Please include details about the scene, the perpetrator(s), details about how the crime would unfold, any dialogue and eyewitness might hear, etc. You should be prepared to share your finished product with the class.

Day 2: Cognitive Biases and Eyewitness Testimony

Day 2 Objective: Students will explain how different cognitive biases can affect eyewitness memory and testimony.

Cognitive Biases and Their Role in Eyewitness Testimony

1. Hand out a copy of the Cognitive Biases and Eyewitness Testimony handout to each student. Verbally walk them through the definition and examples for each of the cognitive biases.
2. In groups of 2-4, students should fill out the column of the chart that asks them to brainstorm ways that each of the cognitive biases might influence eyewitness memory or testimony. They should think of real-world or hypothetical examples where these biases might lead to inaccurate or unreliable accounts of an event.
3. When the students have finished, debrief by asking the groups to share out their ideas with the class.

Case Study Assessment:

1. Hand out a copy of the Eyewitness Testimony and Cognitive Biases Case Study to each student. They should read the case study.
2. When they have finished reading, they should complete the discussion questions. This assessment could be completed individually or in small groups of 2-4 students.
3. When the students have finished, their responses could be collected and individually evaluated, or they could be used as the basis for a class discussion.

Sources:

American Bar Association. (2019). *Lesson three - Are you a good eyewitness?* Insights on Law & Society, Volume 18, Issue 2. Retrieved from https://www.americanbar.org/groups/public_education/publications/insights-on-law-and-society/volume-18/insights-issue-2---vol-18/lesson-three---are-you-a-good-eyewitness-/

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Cognitive Biases and Eyewitness Testimony

Directions: review the cognitive biases listed below and think about how each one could influence eyewitness memory or testimony. Brainstorm real-world or hypothetical examples where these biases might lead to inaccurate or unreliable accounts of an event. Be prepared to share your ideas with the class.

Cognitive Bias	Definition and Example	Relationship to Eyewitness Memory or Testimony
Misinformation Effect	<p>A phenomenon in which a person mistakenly recalls misleading information that an experimenter has provided instead of accurately recalling the correct information that had been presented earlier.</p> <p>Example: During an extracurricular club meeting, a high school student listens to a presentation about online scams, where an example of identity theft is briefly mentioned. Later, a friend incorrectly claims that the speaker said the victim lost their entire life savings, even though that detail was never mentioned. When the student recalls the meeting later, they repeat the detail about the lost life savings, having incorporated it into their own memory.</p>	
Overconfidence Bias	<p>A cognitive bias characterized by an overestimation of one's actual ability to perform a task successfully, by a belief that one's performance is better than that of others, or by excessive certainty in the accuracy of one's beliefs.</p> <p>Example: A high school student barely prepares for their class presentation, believing that they'll do well because they're naturally good at public speaking. They skim their notes the night before and don't practice, confident that they will remember everything. However, during the presentation, they struggle to organize their thoughts, forget key points, and realize too late that they weren't as prepared as they had once assumed.</p>	

Cognitive Bias	Definition and Example	Relationship to Eyewitness Memory or Testimony
<p>Hindsight Bias</p>	<p>The tendency, after an event as occurred, to overestimate the extent to which the outcome could have been foreseen. Hindsight bias stems from (a) cognitive inputs- people selectively recall information consistent with what they now know to be true; (b) metacognitive inputs- people may misattribute their ease of understanding an outcome to its assumed prior likelihood; and (c) motivational inputs- people have a need to see the world as orderly and predictable.</p> <p><i>Example: After seeing the results from their most recent quiz, a high school student sees that they missed several questions and says, “I knew that answer was wrong!” Even though they were uncertain while taking the quiz, they now believe the correct answers were obvious all along.</i></p>	
<p>Confirmation Bias</p>	<p>The tendency to gather evidence that confirms preexisting expectations, typically by emphasizing or pursuing supporting evidence while dismissing or failing to seek contradictory evidence.</p> <p><i>Example: A high school student who firmly believes that video games are harmful to young children is preparing for a class debate on this subject. While researching, they only seek out articles that highlight negative effects, ignoring studies that suggest that video games may bring certain benefits like improved cognitive skills.</i></p>	

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Eyewitness Testimony and Cognitive Biases: Case Study

Directions: read the case study and answer the questions that follow.

Derrick was walking home late at night, feeling exhausted after finishing a busy evening shift at a local restaurant. He stopped at a traffic light near his town's jewelry store. As he waited to cross the street, he glanced towards the store's brightly lit display windows. Suddenly, he heard the sound of shattering glass and saw a figure standing inside the store smashing a glass case with a metal object. The person, dressed in a baseball hat, dark hoodie, and gloves, grabbed handfuls of jewelry before dashing out of the store and sprinting quickly down the street. The entire event lasted just a few seconds, and Derrick didn't even have time to react as the crime unfolded. He pulled out his cell phone and quickly dialed 911 and waited for the police to arrive.

When the police arrived minutes later, officers quickly began questioning Derrick. Feeling fatigued and a bit shaken, he described seeing a person in a dark hoodie breaking a display case and running away, though he wasn't sure about the suspect's height, build, or any defining facial features. An officer clarified, "so the suspect was wearing a black hoodie and jeans?" Though he was unsure if the hoodie was black or dark blue, and he didn't remember noting what kind of pants the suspect was wearing, Derrick nodded because the description sounded plausible.

The next morning, Derrick saw a news report about the robbery. The report mentioned that the suspect was found wearing a black hoodie and jeans, and he was believed to be the person responsible for the crime. After watching the news and seeing the man's mug shot, Derrick became increasingly convinced that the man in the image was the same person he had seen fleeing the store, even though his initial recollection had been vague.

When family and friends asked Derrick to recall his memories of the event in the days that passed, he unknowingly filled in gaps in his recollection based on his assumptions about how jewelry thieves typically look and behave. He was now certain that the suspect had looked around nervously before smashing the glass, had moved in a quick and aggressive manner, and that he might have been carrying a bag- all details that Derrick hadn't mentioned in his statement to the police. He also became more confident that he had seen at least part of the suspect's face, even though he had originally noticed that the perpetrator's hat obscured his facial details.

Derrick was brought into the local police department to identify the suspect in a police lineup. He was met by the same officer that was took his witness statement the night of the crime. Derrick carefully examined the lineup and chose the man who was pictured in the news report that he had seen earlier in the week, shortly after the arrest. Even though there was no physical evidence linking him to the crime, Derrick felt very sure that he had chosen the correct suspect in the lineup.

Analysis Questions:

1. What role does reconstructive memory play in shaping eyewitness testimony?

2. Identify at least three cognitive biases that may have influenced Derrick's memory of the event and explain your reasoning.
3. Explain how schemas may have played a role in Derrick's recollection of the crime.
4. What could law enforcement officials have done differently that would have increased the accuracy of Derrick's memory and his subsequent selection in the police lineup?
5. If you were a defense attorney in this case, how would you challenge the reliability of Derrick's testimony in court?