Lesson plan: Long Term Memory and Memory Errors
90-minute class period

Learning Objectives:
1. Describe what working memory is and how it differs from short- and long-term memory
2. Differentiate between implicit and explicit memory as well as procedural versus episodic memory
3. Describe how priming, false memories and some memory errors work

Before class:
Students read Chapter 5 pp 107-126 of the textbook:
https://www.canyons.edu/_resources/documents/academics/onlineeducation/Psych126TextbookFinalV1_2.pdf
Students also will read Noba Project: Eyewitness Testimony:
https://nobaproject.com/textbooks/new-textbook-0dde4015-d8e5-469e-b218-24a2d29ec363/modules/eyewitness-testimony-and-memory-biases#learning-objectives

10 mins: Think-Pair-Share Question - What is LTM? What are explicit memories and what are implicit memories?

- Ask students to turn to the person to the left of them and think pair share.

10 mins Think-Pair-Share Question What are episodic memories? What are procedural memories?

15 min: In class Kahoot assignment - Groups of 3 students, ask them to come up with question examples for each type of memory and enter them into a Kahoot link or a Google form, discuss after.
   a. What are 2 semantic memory questions?
   b. What are 2 episodic memory questions?
   c. What is a procedural memory question that you could ask someone about?

10 min: Pair the groups of 3 together and have them write the answers to the questions each group came up with. Collect answers.

15 min: Priming and recall mini-lesson:

Script:

"Today we will be talking about memory, and the many ways it functions! We will start with a quick memory test, do not worry about your performance, just do the best you can.

"Please try and remember as many of these words as you can"

1. Slumber
2. Rest
3. Doze
4. Dream
5. Snooze
6. Drowsy
7. Insomnia
8. Tired
9. Pillow
10. Bedtime
11. Night
12. Fatigue
13. Siesta
14. Hibernate

"You may turn over your handout and start with instruction number 1, when you are finished please turn the paper over to the blank side"

Handout

Complete the following words:

    a. N A (p) S

    b. B (e) D

    c. Y A (w) N

    d. S (n) O (r)E

"How many completed your words as "naps, bed, yawn, snore"

*Collect a show of hands for each, write totals on the board

Think-pair-share: "why do you think more of you completed the words this way?"

Go around the room for answers, if close to idea of priming, then concur and explain: This is called a priming effect, where you are more likely to think of words that relate to the list you were just given. Ask what kind of memory this might be associated with.

Next:

- "Please go to the mentimeter link and type in which words you remembered"

*The array on the worksheet is to prime the memory a bit, as well as to inject some more fun into it, since we will only be using mentimeter specifically for the word cloud visualization.

Discuss the word "sleep":

- Ask for show of hands for how many remembered after discussing word cloud concept. Go around the class and ask which words look like they were remembered the most based on the word cloud displayed. Then reveal that sleep wasn't on the actual list!
- Ask why the students think this might be the case. After someone guesses that it has to do with the content of the word lists, confirm that it is a false memory, and explain in more detail, based on questions from the students

Example: "This is what makes things like our own memory biased and fallible, which needs to be kept in mind when trying to discuss facts, such as in eyewitness testimony, or even just when recalling past events"

Minute paper: Describe priming and false memories based on the prior activity.

10 min Think-Pair-Share: why might this be an important phenomenon to keep in mind when thinking about your own memories? What about in terms of eyewitness evidence? Write on board answers as to why this is important: ask each pair or every other pair depending on volume of students

6 min video on amnesia and patient H.M.:
https://www.youtube.com/watch?v=SrmU8P3kBvM
*Warn before the video that it might be disturbing for some, do not penalize anyone if they want to leave and not watch or participate

10 min class discussion: short & long term memory and H.M.
Ask & answer if students have any questions about the video, general discussion about the H.M. case. Depending on the mood of the room, either ask the whole group, or ask as a Think-Pair-Share

1. What was H.M. able to do, and what was he not able to do?
2. Are there any guesses based on the video as to why he could not do some of the things from the first question?

3. What did you learn about memory in general from this video?

Homework for Next Class: Priming & False Memory research report: articulate the research questions addressed, describe the experimental procedures employed, and evaluate possible relevance and implications of their findings in the scope of our class, in your lives, and beyond.

Appendix 1: Resources

Foundational papers:

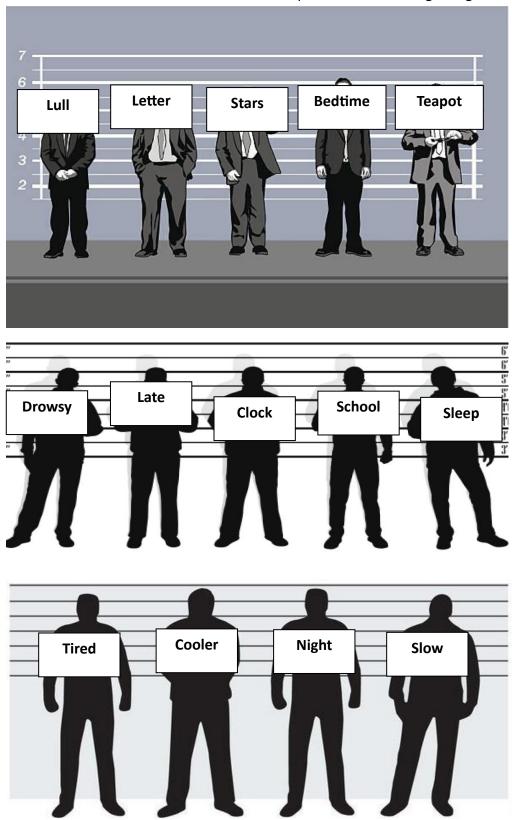False Recall: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3226830/

Priming & Implicit tests:
https://web.p.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=2ed0d141-f057-497f-9d6d-2589f05f9376%40redis

*Note: Used ChatGPT to generate lists of appropriate words

Appendix II: Student Handouts

1. Complete the following words:

   a. NA _ S

   b. B _ D

   c. Y A _ N

   d. S _ O _ E S

2. Circle which words are from the list that was presented at the beginning of class

| Lull | Letter | Stars | Bedtime | Teapot |

| Drowsy | Late | Clock | School | Sleep |

| Tired | Cooler | Night | Slow |