

How to read a research paper

Synchronous Workshop Slides
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Slides adapted from a SIPPS 2022 workshop co-taught with Claudia Espinoza-Heredia

Activity Plan

- Choose a method to take notes
- Read the paper + answer my prompts
- Group activity dissecting another study/paper (maybe)

Disclaimer

- Everything in the pre-recorded video and this workshop is MY way of reading papers. Different things work for different people - so try a few styles out and see what sticks.
- Reading will get easier with more time and practice (like all other skills).

Walk through

Choose one...

- Literature Review Table
- Literature Review Outline
- Paper Notes (organization helps)
- Casual Notes (subsequent organization)

CONTEXT-DEPENDENT MEMORY IN TWO NATURAL ENVIRONMENTS: ON LAND AND UNDERWATER

By D. R. GODDEN AND A. D. BADDELEY
Department of Psychology, University of Stirling

In a free recall experiment, divers learnt lists of words in two natural environments: on dry land and underwater, and recalled the words in either the environment of original learning, or in the alternative environment. Lists learnt underwater were best recalled underwater, and vice versa. A subsequent experiment shows that the disruption of moving from one environment to the other was unlikely to be responsible for context-dependent memory.

The philosopher John Locke cites the case of a young man who learned to dance in a room containing an old trunk. Unfortunately, however, 'the idea of this remarkable piece of household stuff had so mixed itself with the turns and steps of all his dances, that though in that chamber he could dance excellently well, yet it was only while that trunk was there; nor could he perform well in any other place unless that or some other trunk had its due place in the room' (Locke, cited in Dennis, 1948, p. 68).

The belief that what is learnt in a given environment is best recalled in that environment has of course been a useful standby for detective story writers from Wilkie Collins onwards, although the empirical evidence for such a belief is somewhat equivocal. Farnsworth (1934) and Pessin (1932) were both unable to obtain a context-dependent memory effect. A later study by Jensen *et al.* (1971) was more successful, but a recent unpublished study by Hitch (personal communication) failed to observe any effect. An alternative approach to the context-dependent phenomenon utilizes a retroactive interference (RI) design in which material learned in one environment is followed by a second set of material presented in either the same or a different environment, which in turn is followed by a recall test on the original material. This final test itself may be in the initial environment or in the interpolated environment. Using this design, Bilodeau & Schlosberg (1951) found that an interpolated list caused only half as much RI when it was learned in a room differing markedly from that in which original learning took place. Comparable results were obtained by Greenspoon & Ranyard (1957), and by Zentall (1970). However, Strand (1970) has presented evidence suggesting that the inferior retention observed when the recall environment is different results not from the different context *per se*, but from the disruption that occurs when the subject moves from one environment to the other. She required the subjects in her control conditions, in which learning and recall were in the same environment, to leave the room and have a drink of water from a drinking fountain before beginning the recall phase of the experiment. Under these conditions she found no reliable difference between subjects who learned the interfering material in the same and those who learned in a different environment.

The evidence for context-dependent memory is therefore far from convincing. Furthermore, a number of the studies which have obtained effects have used

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Activity:

Read the prompt on the following slides,
find the answer from the Godden &
Baddeley 1975 paper, and fill out your lit
review table

Question

What are the main questions being asked? (i.e. goal of the paper)

Hint: Look at the last couple of paragraphs of the introduction.

Hypotheses

What is their hypothesis?

Hint: This is also typically in the last couple of paragraphs of the introduction. Sometimes this can be phrased as “we predict” instead of “we hypothesize”.

Participants

Who are the participants?

(age, population, any other inclusion/exclusion criteria specific to the question?)

Hint: This is typically the first sub-section of the Methods section

Design

What did participants do? What was the task or questionnaire?

How long was it for? Any other important details in the design?

Hint: This is typically the second sub-section of the Methods section (after Participants)

Variables

What is their Independent variable (or predictor)? What is their dependent variable (or outcome)?

How are they measuring it (also known as “operationalization”)? Any other variables being measured?

Hint: This is sometimes in the abstract, sometimes in the last paragraph(s) of the introduction, but sometimes you'd have to read the methods section to find out.

Main finding

What did they find? Is there a figure that summarizes it? Do I understand all the variables and how they are measuring it?

Hint: I typically skim the first subsection of the results to get the main point. In my first reading, I ignore most of the statistics.

Hint 2: Sometimes, the results can be hard to understand. In that case, I might skim the methods section some more to find where they talk about the measurements used, and how it relates to their findings.

Inference of the main finding

What does the main finding mean? How does it relate back to their hypothesis? And more broadly, how does it relate to the field or the literature they reviewed?

Hint: This should typically be in the first couple of paragraphs of the Discussion section.

At this point, I also start thinking about limitations of the study or the design, and make a mental note of it.

Other findings

Are there other findings in the paper? Do they have figures explaining them?

What do these findings mean?

Hint: Repeat the process you used for the Main finding and its inference. Essentially,

1) read the finding in the results section,

2) understand what that means in relation to their hypotheses and their methods.

Critiquing papers

Hint: You might have to read and re-read the paper a few more times to be able to answer the questions below or critique it. At this stage, remember to make notes of things that stand out to you, or any limitations that they don't address (you can write them down in the "notes" column of your lit review table)

- Was the purpose and importance of the study clear?
- Were the hypotheses theoretically sound and clearly stated?
- Does the design make sense? Will it allow the authors to test the question? Could it be improved?
- Were the proper statistical approaches used to answer the questions?
- Were the conclusions drawn appropriate? Could there be any alternate explanations for the results?
- How do the results fit in with the broader idea of the paper?
- Was the discussion clear? Did it synthesize the paper well? Did it make sense of contradictory or non-significant findings?

<http://labs.psychology.illinois.edu/~lyubansk/Method/rmcritique.htm>

Reading Review Papers

- The lit review table or outline won't work for this.
- I usually take disorganized notes (annotations, highlight, write in the margin etc.)
- I still write the citation of the paper in my lit review table + write a summary of the paper

A
Citation
Sirois & Brisson (2014)

B	C	D	E	F
Hypotheses or Questions	Study design (task or procedure)	IV & DV (s)	Main results	Secondary results

Notes	Journal
<i>thorough review on research using pupillometry (in memory, perception and attention). Also goes over the steps in doing an analysis on pupil diameter data (they are not discrete values but a time course like fMRI so need time course type analysis. Useful to come back and look up all the references that I've commented about.</i>	Cog Sci

Breakdown another paper!

Try going through another paper (Chapman, Colby, Li) and use one of our other suggested methods for taking notes.