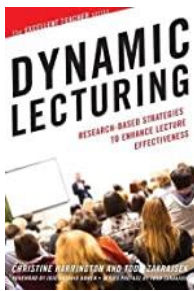


Dynamic In-Person and Online Lecturing in First-Year Courses



1

Agenda

Why Lecture

Maximizing Learning via Lectures

2

Why Lecture?

LiveChat



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3

Research Evidence

Stockard et al. (2018)

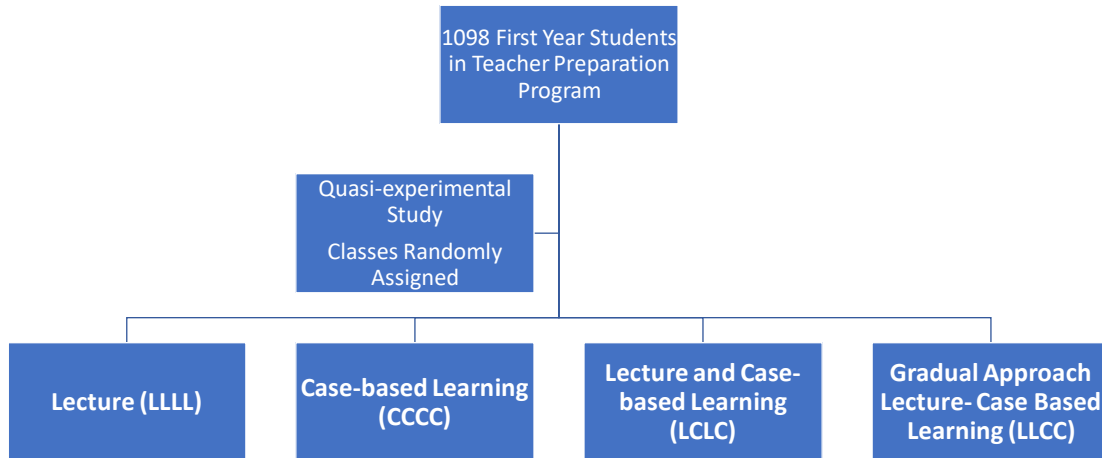
Meta-analysis of half-century of research

- 328 studies

Direct Instruction Works!

4

A Quasi-Experimental Study with 1st Year College Students



Baeten, Dochy, & Struyven (2013)

5

What is Case-Based Learning?

1. Active Involvement- Constructing Knowledge
2. Teacher is Facilitator
3. Authentic Assignments
4. Cooperative Group Work



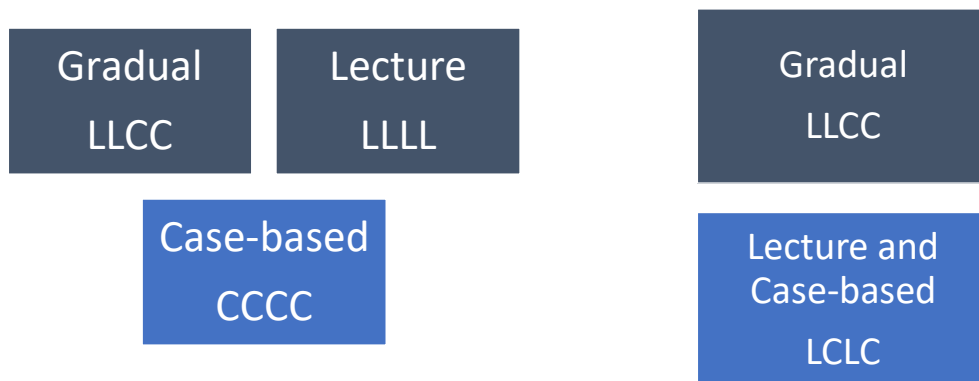
6

Prediction Poll

- Which group did the best?
 - Lecture only
 - Case-based learning only
 - Alternating: Lecture- Case-based- Lecture- Case-based
 - Gradual: Lecture- Lecture- Case-based- Case-based

7

Direct Instruction with Gradual Introduction of Case-Based Learning Worked Best!



Baeten, Dochy, & Struyven (2013)

8



Direct Instruction is BEST for Novice Learners

Clark, Kirschner & Sweller (2012)

9



Expertise Reversal Effect

Blayney, Kalyuga, & Sweller (2015); Lee & Anderson (2013)

10

Maximizing Learning via Lecturing



11

7 Strategies for Maximizing Learning via Lecturing

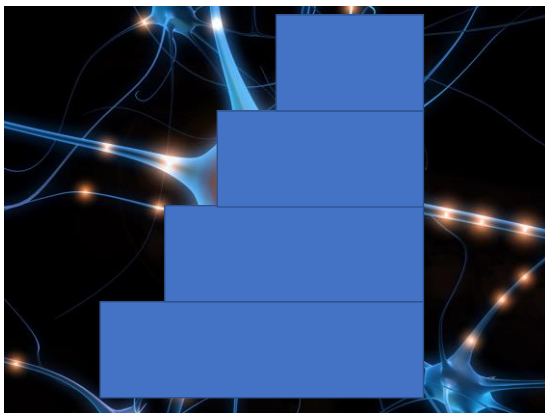
1. Activating Prior Knowledge
2. Capture Attention and Emphasizing Important Points
3. Effective Multi-Media Use
4. Elaboration through Examples
5. Reflection Opportunities
6. Retrieval Practice
7. Questioning for Critical Thinking

12

Strategy 1: Activate Prior Knowledge

13

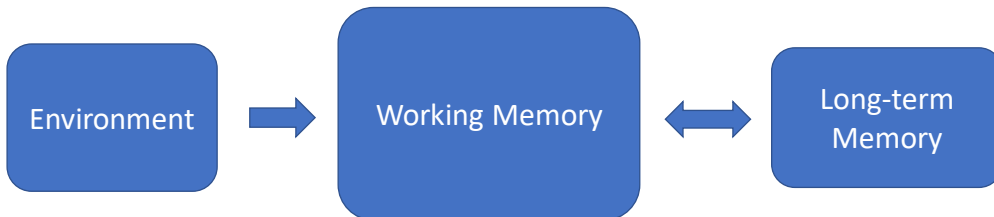
Activating Prior Knowledge:
Learning is Incremental



Goswami (2008)

14

Activating Prior Knowledge



Adapted from Willingham (2009)

15

One Minute Summary



What is a teaching strategy that you use or would like to use to activate prior knowledge?

16

Dusting Off the Cobwebs

1. No Notes- What did you learn from our last class?
2. Look at Notes- Fill in any information gaps
3. Large Group Discussion



17

Strategy 2: Capturing Attention and Emphasizing Important Points

18



How long can students pay attention during a lecture?

19

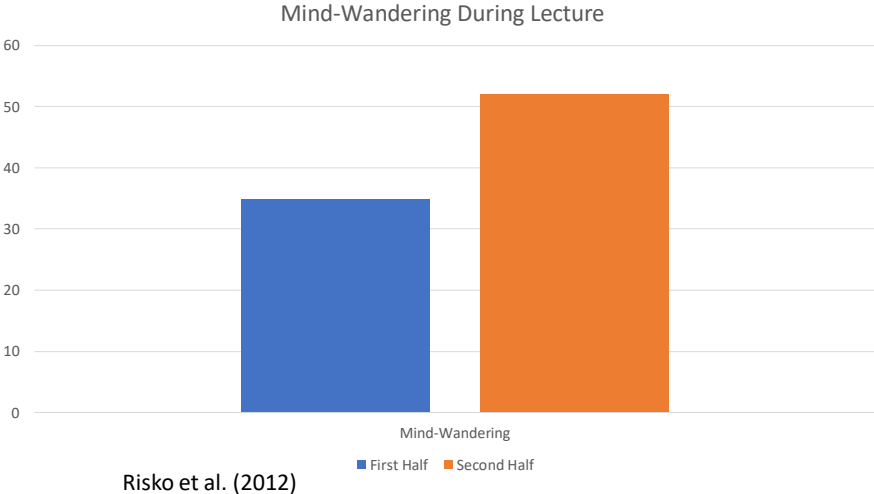


How long can students pay attention when reading?



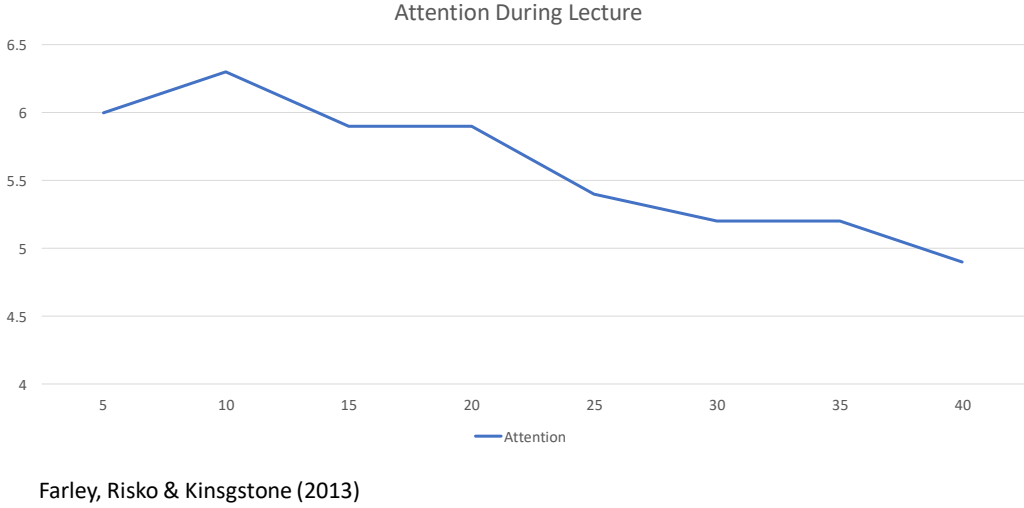
20

Attention and Length of Lecture



21

Attention and Length of Lecture



22

A Brief Attention Grabber Works!

Experimental Group: 90 second topic-related activity

- Poem
- Game
- Word search

Control Group: Attendance roster

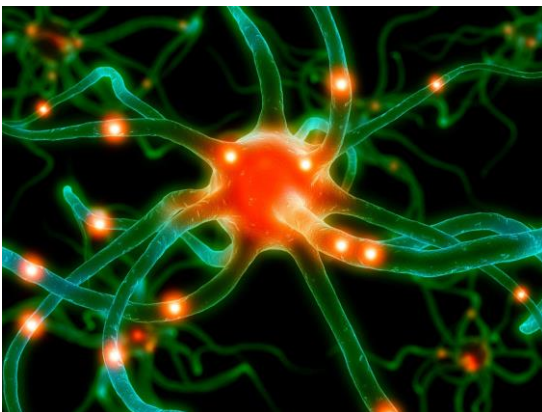
Findings:

- Experimental groups outperformed control group (difference was less than one point on a 15-item test)
- No difference between type of attention grabber

Rosegard and Wilson (2013)

23

Emphasizing Important Points: Novices vs. Experts

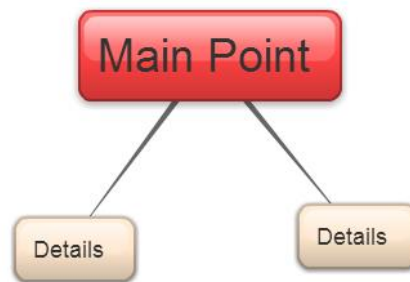


- Novices focus on the details instead of the big picture
- Experts make more inferences
- Prior knowledge increase accurate inferences

Hrepic, Zollman, Rebello (2003)

24

Emphasizing Important Points



Hogan, Rabinowitz, & Craven 2003

25

Strategy 3: Using Multi-Media Effectively

26

What makes PowerPoint Slides effective?



Breakout Room
Turn and Talk

27

Multi-Media: We are all Visual Learners



Mayer (2009)

28

Less is More!



Mayer (2009)

29

Draw Attention to Important Concepts



Mayer (2009)

30

The “Be Quiet” Principle (also known as the Redundancy Principle)

Mayer (2009) brings attention to the fact that when you have a visual aid such as a PowerPoint slide that contains a lot of words (like this one!), it makes it difficult for the student to process the information. There are competing channels fighting for attention. You want to listen and you want to read. You end up trying to do both and not doing either one very well. He argues that because images are so powerful, it is often best to use an image as a back drop to your narration. If you need to use a lot of words on a slide, then “be quiet” (these are my words not Mayer’s words!) and let them read it. Then, you can explain it more once they are finished reading.

31

Use Conversational Language rather than Formal Language



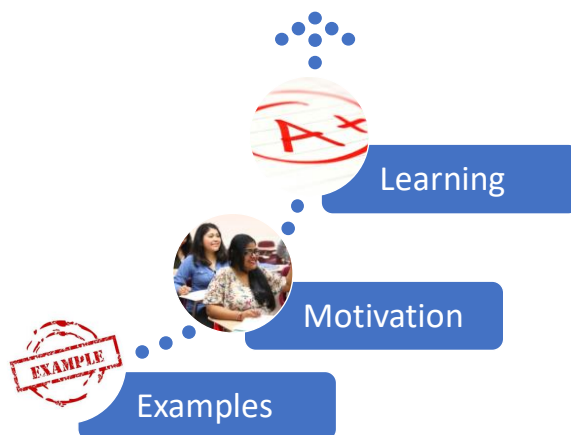
Mayer (2009)

32

Strategy 4: Elaboration via Examples

33

Elaboration via Examples

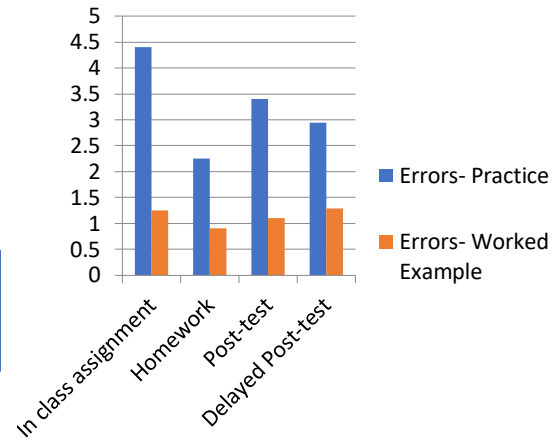
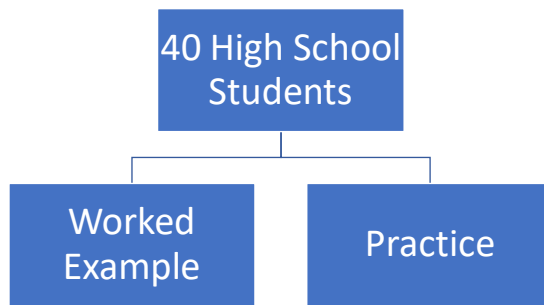


Wlodkowski & Ginsberg (1995)

34

Examples lead to Better Performance

Carrol (1994)



35

Elaboration: What Works Best?

Hamilton (1997)



Relational Elaboration

Focusing on similarities and differences between concepts led to highest levels of achievement

36

Strategy 5: Brief Reflection Opportunities

37

Cognitive Engagement Matters the Most!



Mayer (2009)

38

Brief Reflection Opportunities

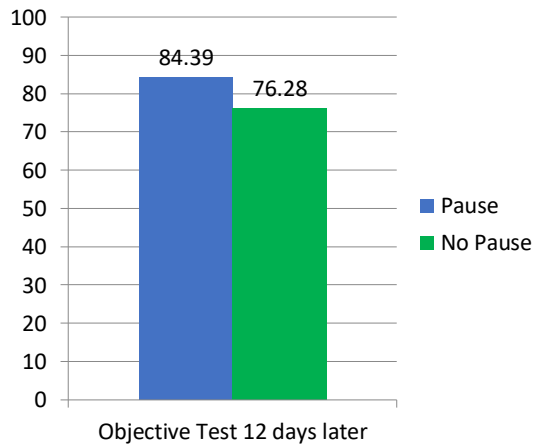
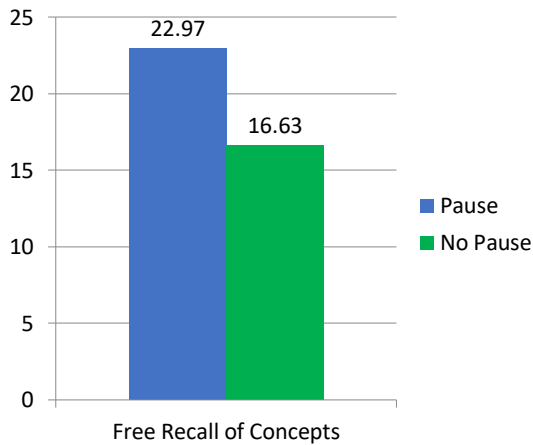
- One Minute Papers
- Turn and Talk or Think Pair Share
- Compare Notes
- Quick Quizzes
- 5 Paper Fast Pass



39

The Power of Pausing

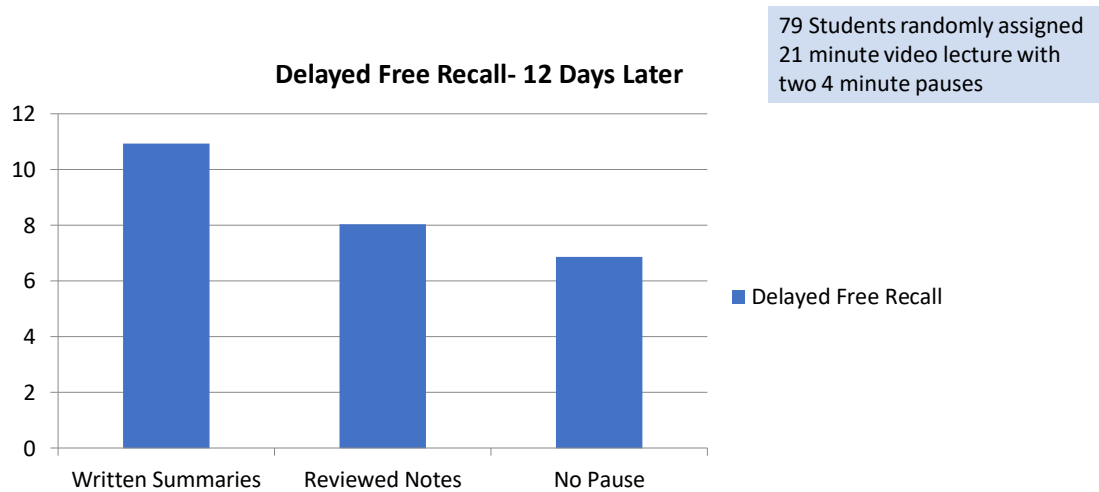
Three 2 minute Pauses to Review Concepts and Share Notes



Ruhl, Hughes, & Schloss (1987)

40

The Power of Writing Summaries During Class



Davis & Hult (1997)

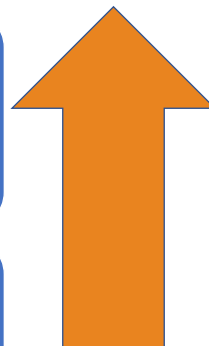
41

Pausing and Revising Notes

Luo, Kiewra, & Samuelson (2016)

Revising notes DURING
lecture vs. after lecture

Revising WITH A
PARTNER vs. revising
alone



- Concepts in Notes
- Higher Test Scores

42

Benefits of Active Learning Breaks

McCullough and Munro (2018)

Benefits identified by students	Immediate application of concepts increased understanding
	Peer interaction
	Attention, interest, motivation

43

Poll Question

True or False

Written summaries improved retention of information and exam performance.

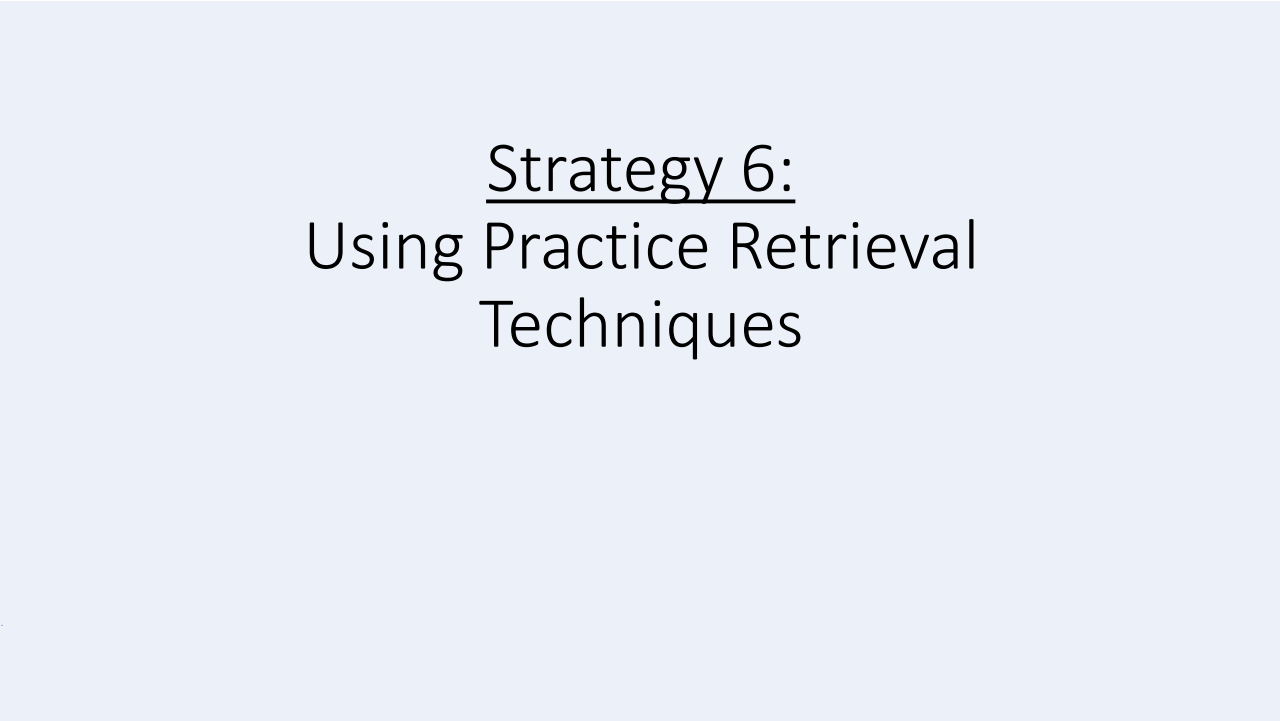
44

Poll Question

True or False

Revising notes during class with a partner improved academic performance.

45

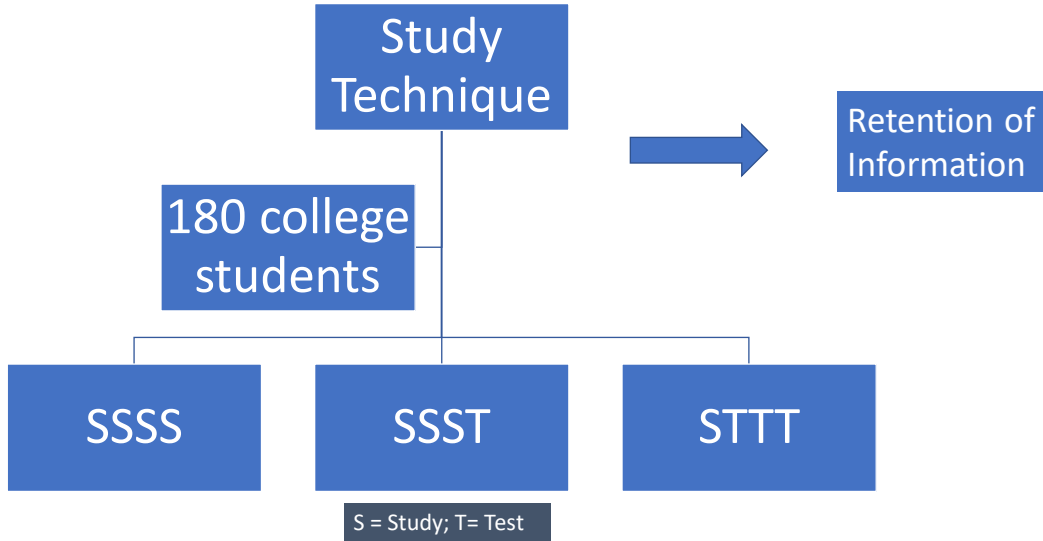


Strategy 6:
Using Practice Retrieval
Techniques

46

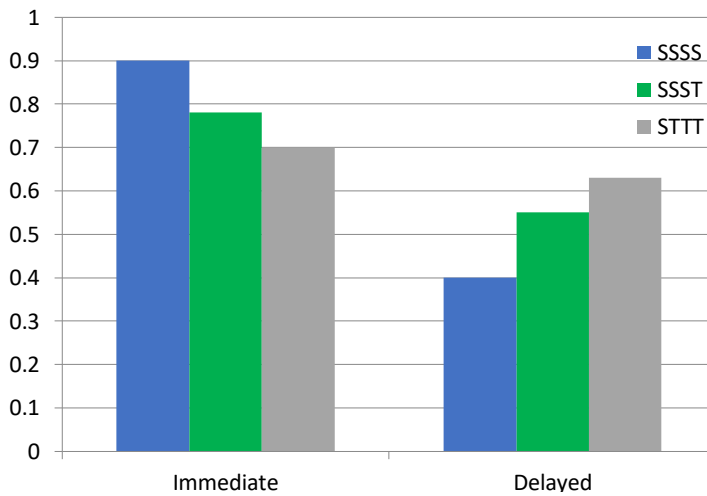
A Research Study

Roediger & Karpicke (2006)



47

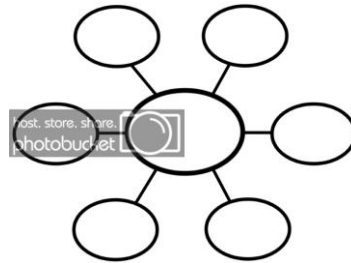
Retrieval is a MEMORY tool!!!



Roediger & Karpicke (2006)

48

Various Types of Retrieval Work

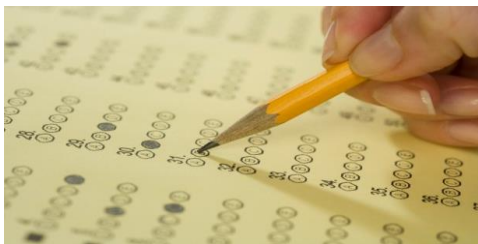


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Summary and Concept Map Equally Effective and Better than Reviewing
Blunt & Karpicke (2014)

49

Quizzing Research



- Weekly quizzing
- Testing until you get it correct

Landrum (2007); Di Hoff, Brosvic, & Epstein (2003); Epstein, Epstein, & Brosvic (2001)

50

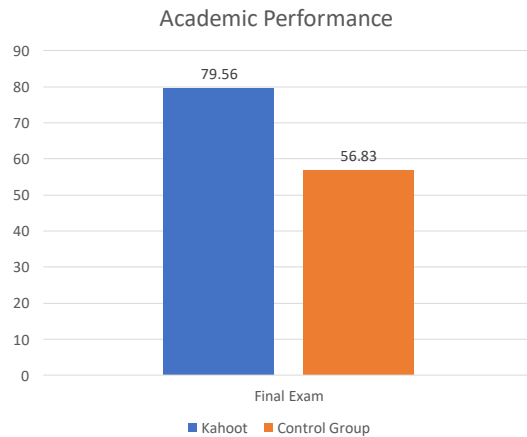
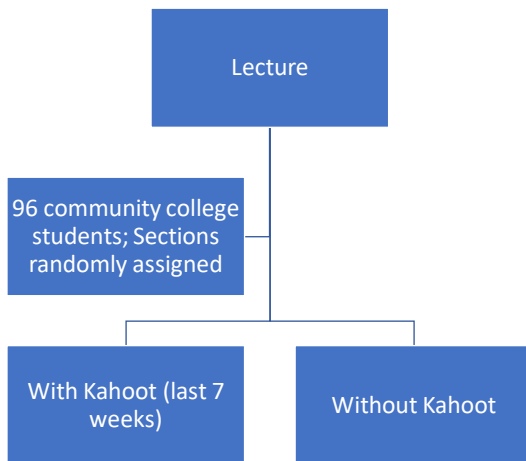
Polling



51

Kahoot Improves Learning

Bawa (2019)



52

Strategy 7: Questioning for Critical Thinking

53

Learning Purpose	Socratic Questions
Clarifying Explanations	<p>What do you mean by....?</p> <p>Provide an additional example of....</p> <p>How does this compare and/or contrast to....?</p> <p>What are the potential advantages and disadvantages of... ?</p>
Questioning Assumptions	<p>What other explanations might account for this?</p> <p>What are the assumptions behind this statement?</p>
Exploring Additional Evidence	<p>How can we find out more about this topic?</p> <p>How does this connect to the concepts we've discussed previously?</p> <p>What additional evidence can you find to support or refute this idea?</p>
Multiple Perspectives	<p>What would someone who disagrees say?</p> <p>What are the cultural implications?</p>
Real World Implications	<p>What are potential consequences or implications of this?</p> <p>Provide a real world example of....</p>
Self-Reflective Processes	<p>Why should this issue matter?</p> <p>What is the importance of learning about this issue?</p> <p>What other questions do you now want to explore?</p>

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Teach Students How to Develop Questions

King (1995)

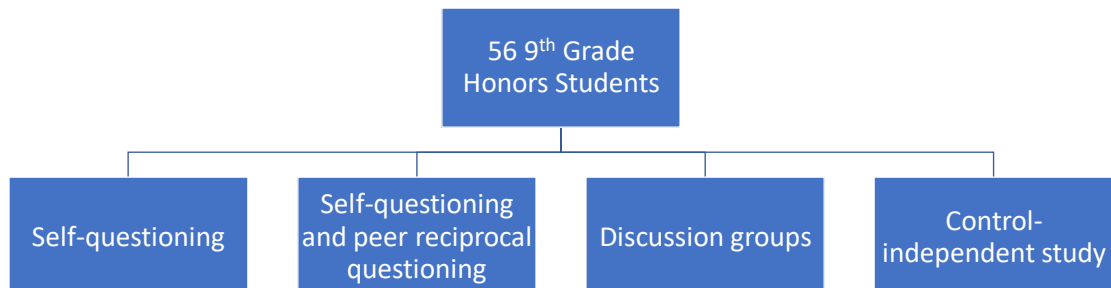


- Reciprocal Peer Questioning
- Reading Questions
- Share and Compare

55

Questioning leads to Higher Achievement

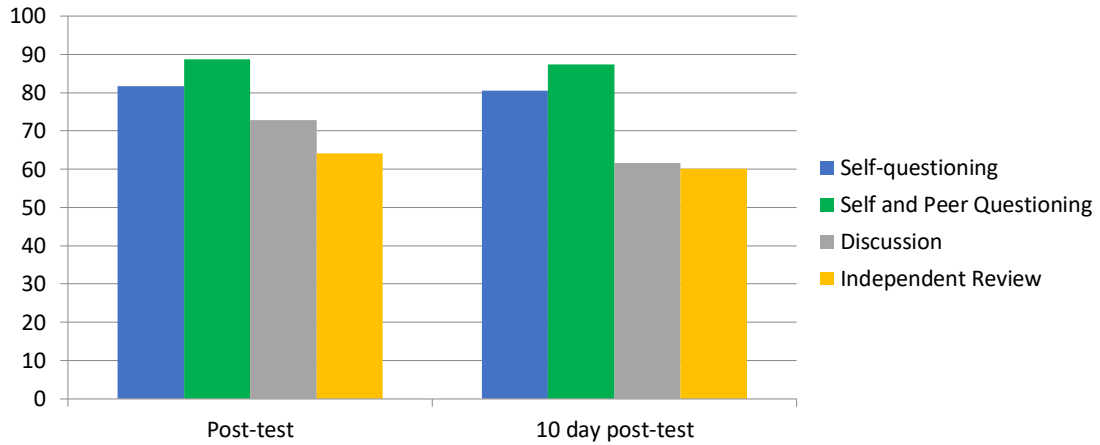
King (1991)



56

Questioning leads to Higher Achievement

King (1991)










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What was your main take-away from today's session?



58

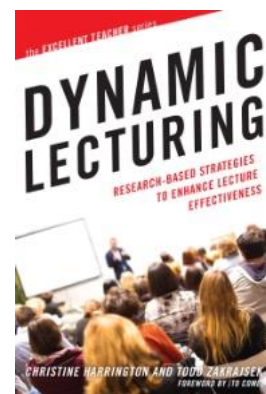
Let's Summarize What We've Discussed...

	Prior Knowledge
	Attention and Importance
	Multi-Media
	Examples
	Reflection
	Practice Retrieval
	Questioning

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Questions? Contact Dr. Harrington at
drchristineharrington@gmail.com
www.scholarlyteaching.org

Thank you and
 best wishes with dynamic lecturing!



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