

# Lecturing: 7 Simple Strategies to Increase Student Engagement and Learning

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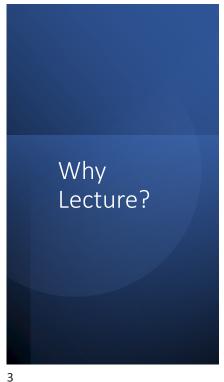
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#### Learning Outcomes

Summarize the research illustrating the benefits of lecturing when done well.

Explain how to incorporate evidence-based, inclusive practices into a lecture.

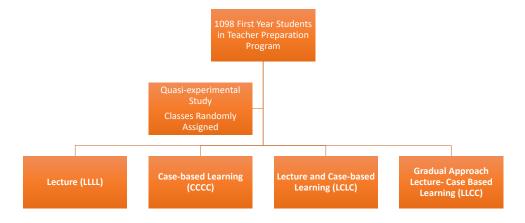




#### Exploring the Lecture

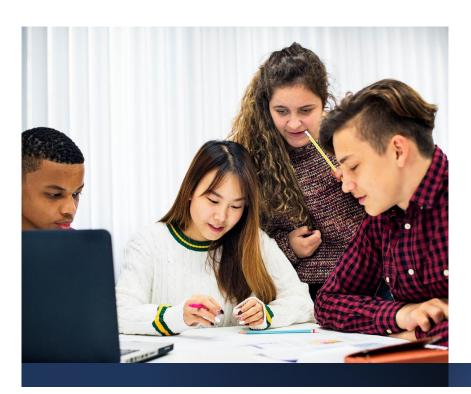
#### Fortunately... **The Reality** Meta-analysis of halfcentury of research The lecture continues •328 studies to be the most used teaching method **Direct Instruction** (Davidson & Katopodis, 2022) Works! ((Stockard et al., 2018)

### A Quasi-Experimental Study with $1^{\rm st}$ Year College Students



Baeten et al. (2013)

5



#### What is Case-Based Learning?

- Active Involvement-Constructing Knowledge
- Teacher is Facilitator
- Authentic Assignments
- Cooperative Group Work

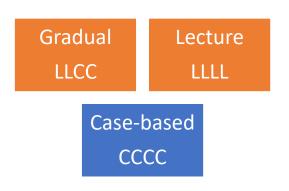
### Prediction

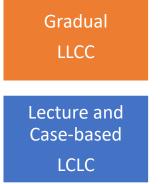
#### Which group did the best?

- · 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)

Direct Instruction is BEST for Novice Learners

Clark et al. (2012)



9



Expertise
Reversal Effect

Blayney et al. (2015); Lee & Anderson (2013)

Maximizing Learning via Lecturing



11

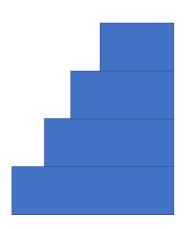
7 Strategies for Maximizing Learning via Lecturing

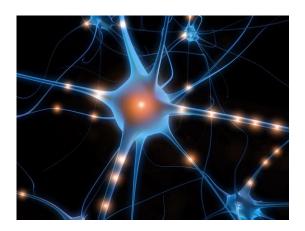
- L. Activating Prior Knowledge
- 2. Capture Attention and Emphasizing Important Points
- 3. Effective Multi-Media Use
- 4. Elaboration through Examples
- 5. Reflection Opportunities
- 6. Retrieval Practice
- 7. Questioning for Critical Thinking



13

#### Activating Prior Knowledge: Learning is Incremental, Acknowledge Lived Experiences





Goswami (2008)



### Dusting Off the Cobwebs

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

15

## Strategy 2: Capturing Attention and Emphasizing Important Points



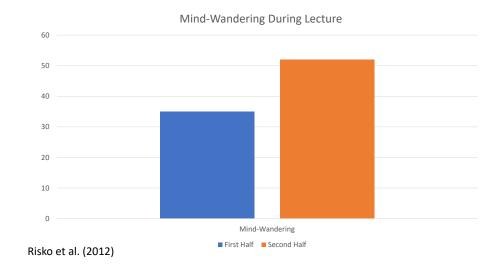
# How long can students pay attention during a lecture?

17

How long can students pay attention when reading?

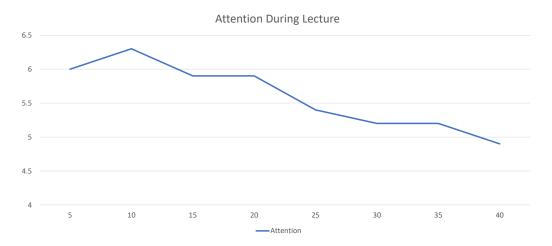


### Attention and Length of Lecture



19

### Attention and Length of Lecture



Farley, Risko & Kinsgstone (2013)



# A Pre-Lecture Cognitive Exercise White et al. (2024)

5-minute Cognitive Calisthenics Before Lecture

Significantly better performance on exam (M = 80) than when not used (M = 74)

21

#### A Brief Attention Grabber Works!

# Experimental Group: 90 second topic-related activity

- Poem
- Game
- Word search

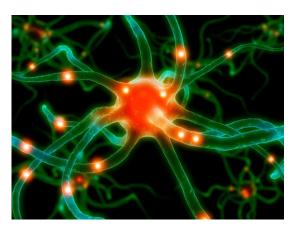
Control Group: Attendance roster

#### 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)

#### **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)

23

#### Identify the 3 Big Ideas







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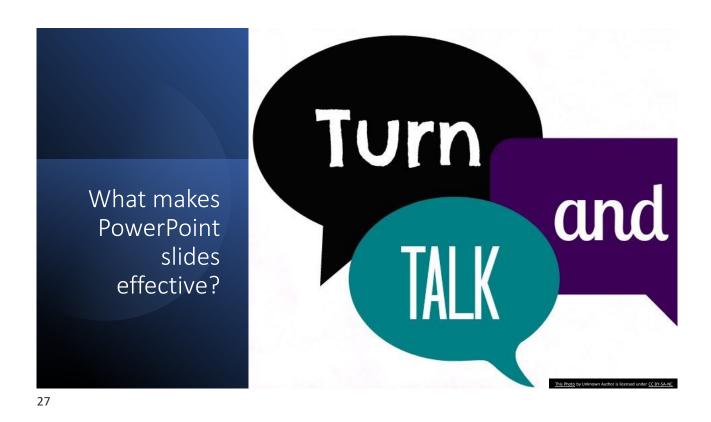
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### **Emphasizing Important Points**



25

# Strategy 3: Using Multi-Media Effectively



#### Multi-Media: We are all Visual Learners



Mayer (2009)

#### Representation and Exclusivity in Lecture Slides Ahn et al. (2023)



29

#### Roles and Inspiration in Lecture Slides Ahn et al. (2023)



Only 12% of photos with POC were viewed as inspirational

# Less is More!



Mayer (2009)

31

### Draw Attention to Important Concepts



Mayer (2009)

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.

33

# Use Conversational Language rather than Formal Language

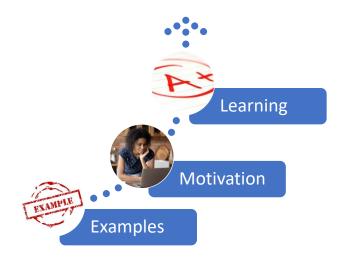
• Mayer (2009)





35

### Elaboration via Examples



Wlodkowski & Ginsberg (1995)

Is the content relevant and interesting to all students? Quinlan (2019)

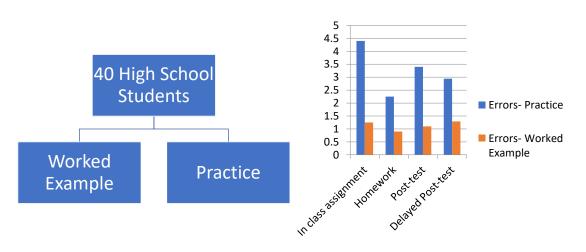
 Black and Minority Ethnic students had lower levels of interest in lectures than White students in UK/EU.



37

#### Examples lead to Better Performance

Carrol (1994)



Another Example... Miller & Schraeder (2022)

Students in a large lecture college algebra course who completed worksheets that had worked examples outperformed students in a Q & A session.

39

### <u>Strategy 5:</u> Brief Reflection Opportunities

#### **Brief Reflection Opportunities**



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

41



#### Active Learning Breaks and Equity

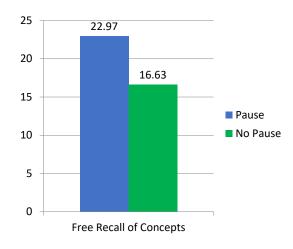
Dutta & Arnold (2022)

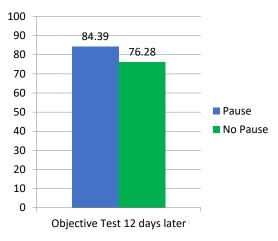
Women are more likely to participate in class after another woman participates.

Give women opportunities to share reflections to reduce gender gaps in participation

#### The Power of Pausing

Three 2 minute Pauses to Review Concepts and Share Notes

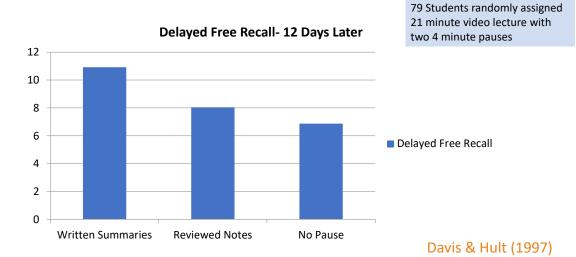




Ruhl, Hughes, & Schloss (1987)

43

# The Power of Writing Summaries During Class



#### Pausing and Revising Notes

Luo, Kiewra, & Samuelson (2016)

Revising notes <u>DURING</u> lecture vs. after lecture

\* Higher Test
Scores

PARTNER vs. revising
alone

45

#### Benefits of Active Learning Breaks

McCullough and Munro (2018)

Benefits identified understanding by students

Peer interaction

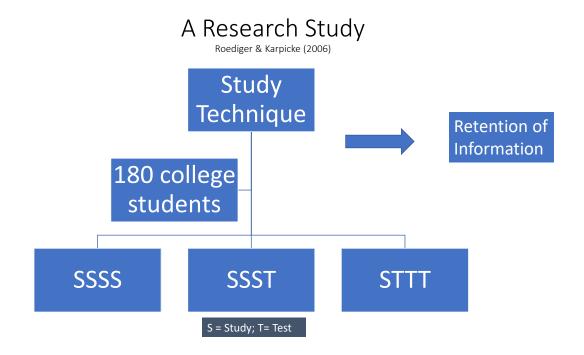
Attention, interest, motivation

What did you learn about the power of pausing during a lecture?



47

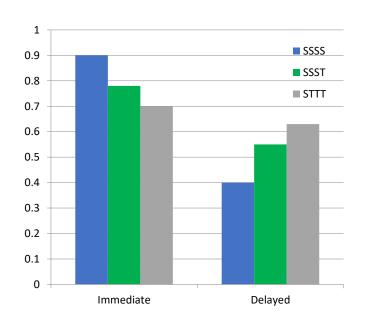
## Strategy 6: Using Practice Retrieval Techniques



49

# Retrieval is a MEMORY tool!!!

Roediger & Karpicke (2006)



### Quick Quiz

True or False

Written summaries improved retention of information and exam performance.

51

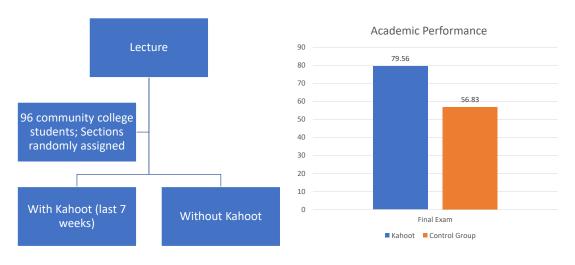
### Quick Quiz

True or False

Revising notes during class with a partner improved academic performance.

#### Kahoot Improves Learning

Bawa (2019)



53

# Strategy 7: Questioning for Critical Thinking

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

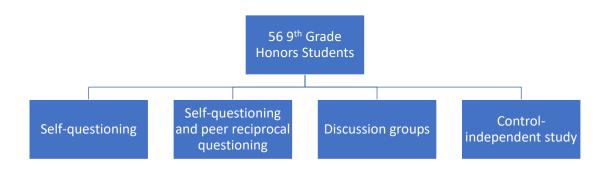
55



#### Teach Students How to Develop Questions King (1995)

- Reciprocal Peer Questioning
- Reading Questions
- Share and Compare

# Questioning leads to Higher Achievement (1991)



# Questioning leads to Higher Achievement King (1991)

■ Self-questioning ■ Self and Peer Questioning Discussion ■ Independent Review Post-test 10 day post-test

#### Let's Summarize ...



59



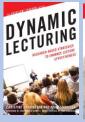


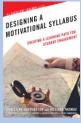






#### THANK YOU









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61

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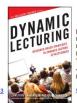


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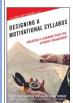


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