

# Teaching in the Virtual Environment

Essentials of Teaching and Assessment  
September 17, 2020

Jesse Moore MD



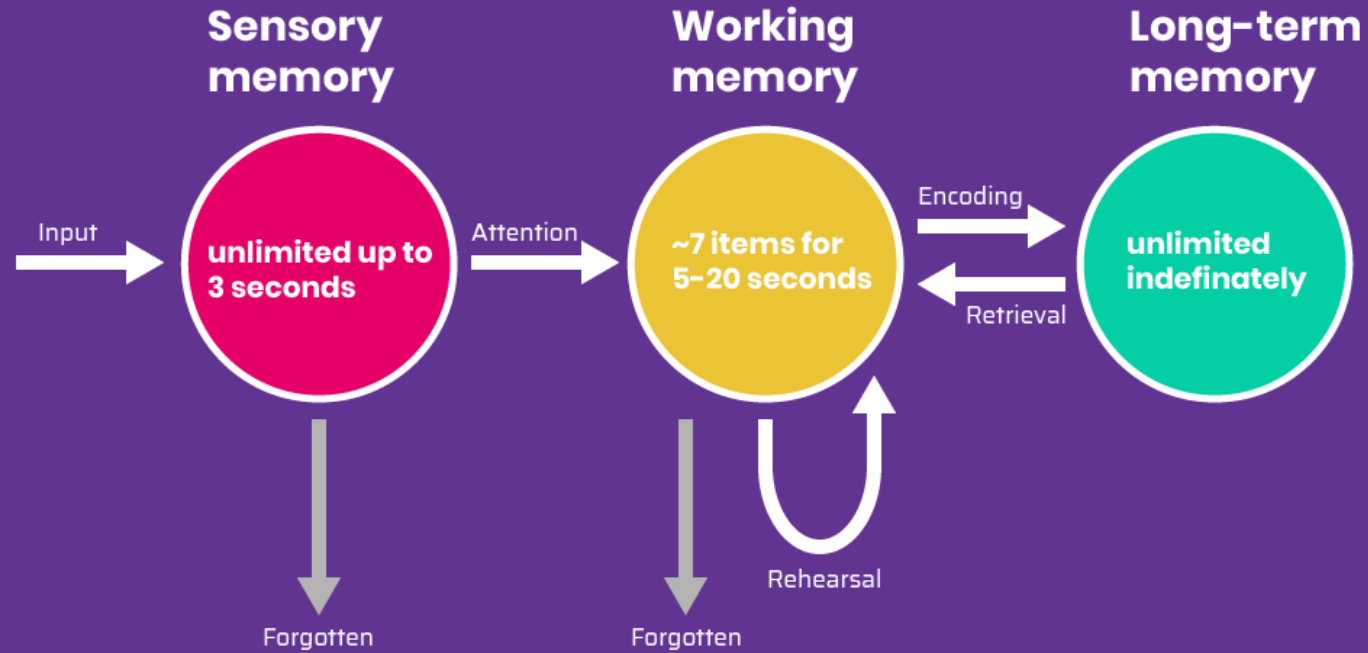
# How this session will run

- Please mute your microphone
- Please have cameras on – increases engagement
- Use of chat – I'm not good at monitoring while presenting!
- If you have a question – please save it until the end

# Objectives

- Compare differences between in-person and virtual teaching
- Describe how an active learning session may need to be revised for virtual delivery
- Describe effective use of Zoom for teaching

# Information Processing Model



gerardfriel.com

Germane = elements that aid processing and development of schema

Extraneous = related to the instructional method, does not aid learning

Intrinsic = the difficulty of the material

Total  
cognitive  
load

**Working memory**  
(limited element capacity)

**Extraneous load**  
from instructional  
techniques

**Intrinsic load**  
from complexity  
of task and prior  
experience

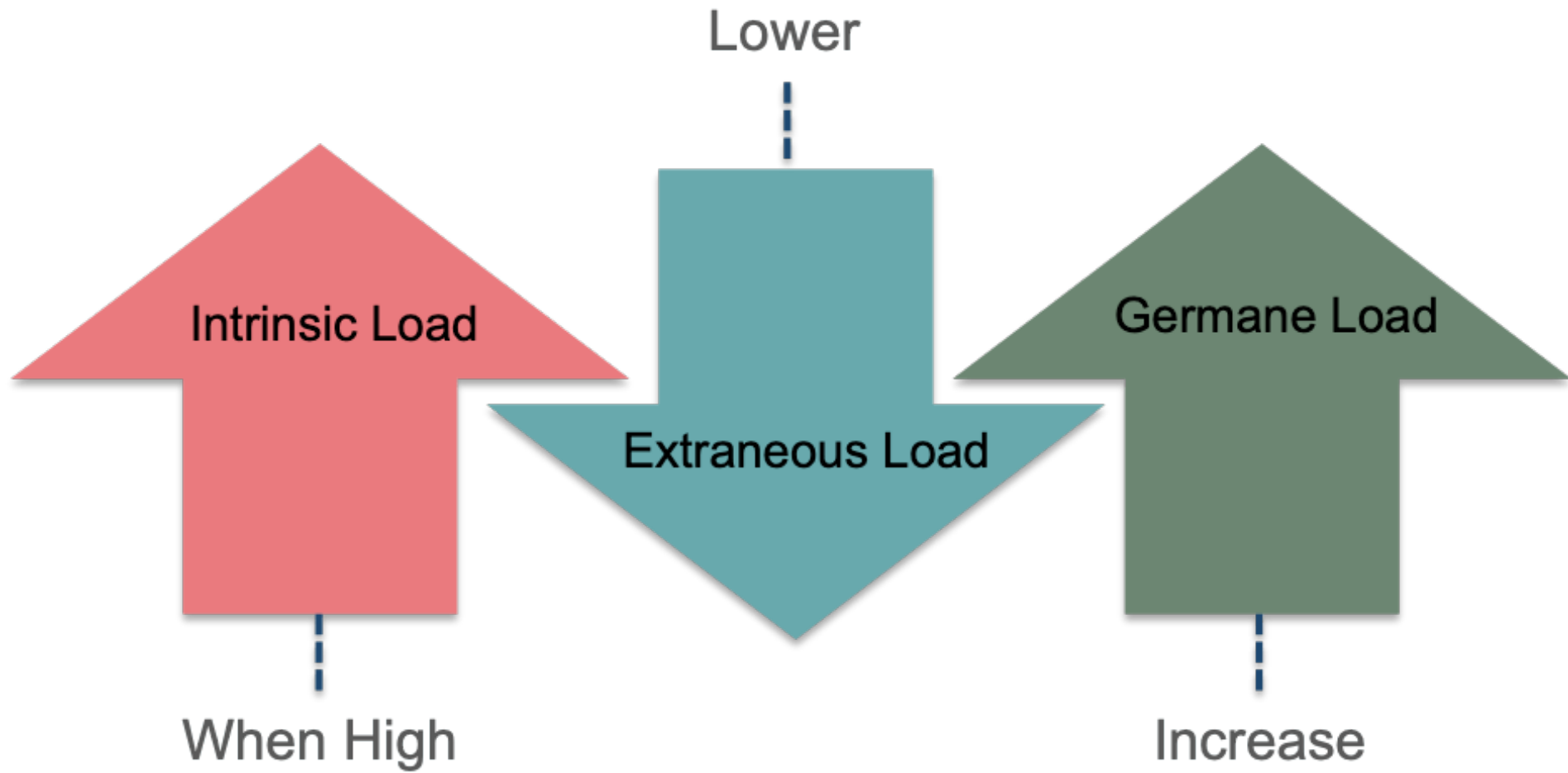


**Schema**  
(cluster of  
connected  
ideas)

**Preexisting  
schemas**  
retrieved from  
long-term memory

**Long-term memory**  
(no known limits)





# What is active learning?

- Active learning methods rely on student engagement to construct knowledge rather than passively absorbing it from an expert.
- The focus of an active learning session is not on faculty transferring information, but on students developing skills such as demonstration, teaching, application, and discussion





# First breakout

- 5 minutes total –
  - 3 minutes in breakout rooms
    - Introduce yourself
    - Think of examples of active learning
  - 2 minutes to share examples back in the large group
    - I'll call on you by group number –  
NOTE YOUR BREAKOUT ROOM  
NUMBER

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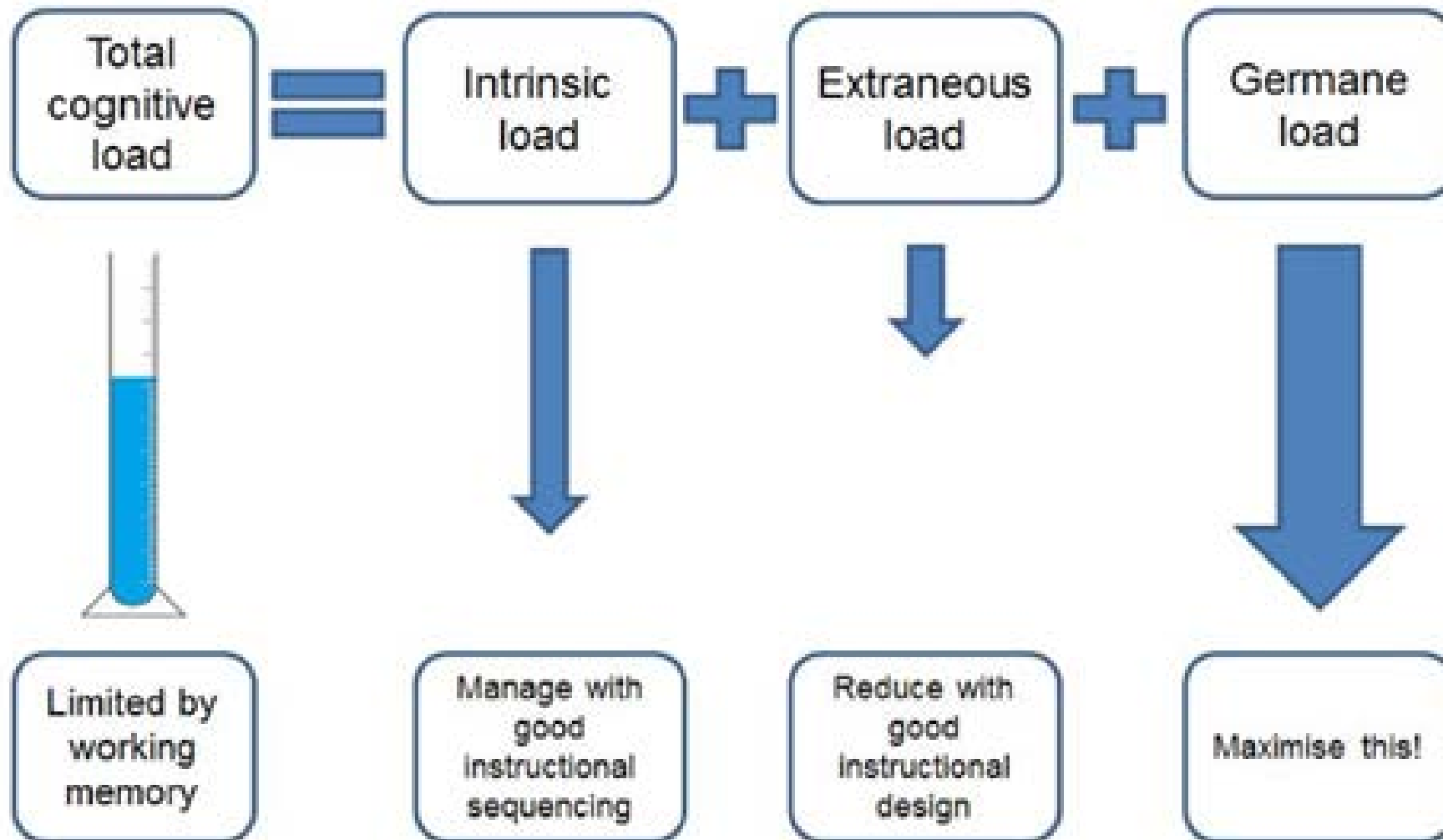
# What curriculum delivery with active learning looks like

- Flipped classrooms
  - Pre-learning of content, in class application exercises
- Peer teaching
- Case based learning
- Problem based learning
- Concept mapping
- Simulation

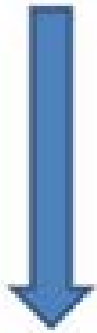


# Our methods (SOPs)

	Case-Based learning (CBL)	Problem-based Learning (PBL)	Team-based Learning (TBL)	Workshop	Integrative Review
Prep before Class	Yes, and readiness quiz (RQ) due 7 am the day of class	No pre-learning material but you will have self-determined objectives and topics to prepare for presentation	Yes, typically more than for CBL or Workshop	Yes, and readiness quiz (RQ) due 7 am the day of class	Yes, but no new materials
During Class	Cases. No new material. Focus on application, clarification, and developing depth of understanding. Small groups in a large or small group format	Discussion and analysis of the problem, peer teaching/presentation at follow-up session. Small groups.	Sit with same team for every session. Take IRAT, then GRAT. Teams work on application questions together, then report simultaneously.	Non-case-based problems or tasks for application of knowledge. Small groups in a large or small group format	Clinical problems, questions, challenges, puzzles, or tasks. Small groups in a large or small group format
After Class	Pre-learning, RQ with answers, and limited inclass materials provided, no answers	Research and prepare presentation for your peers in the next session	Key concept slides (if used) provided, no answers	Pre-learning, RQ with answers, and limited inclass materials provided, no answers	Pre-learning and limited in-class materials provided, no answers
Grading	RQ counts towards grade. $\geq 70\%$ = 100% Two lowest RQ scores dropped.	Facilitator assesses critical thinking, self-direction, knowledge, collaboration	IRAT and GRAT count towards grade	RQ counts towards grade. $\geq 70\%$ = 100% Two lowest RQ scores dropped.	N/A



Intrinsic  
load



Manage with  
good  
instructional  
sequencing

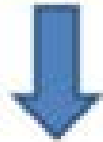
- Technically immutable
- Mitigation:
  - Volume and level appropriate!
  - What do they already know
  - What do they need to know
  - What do prior assessments tell you



Phone a friend!



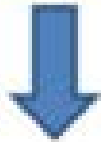
Extraneous  
load



Reduce with  
good  
instructional  
design

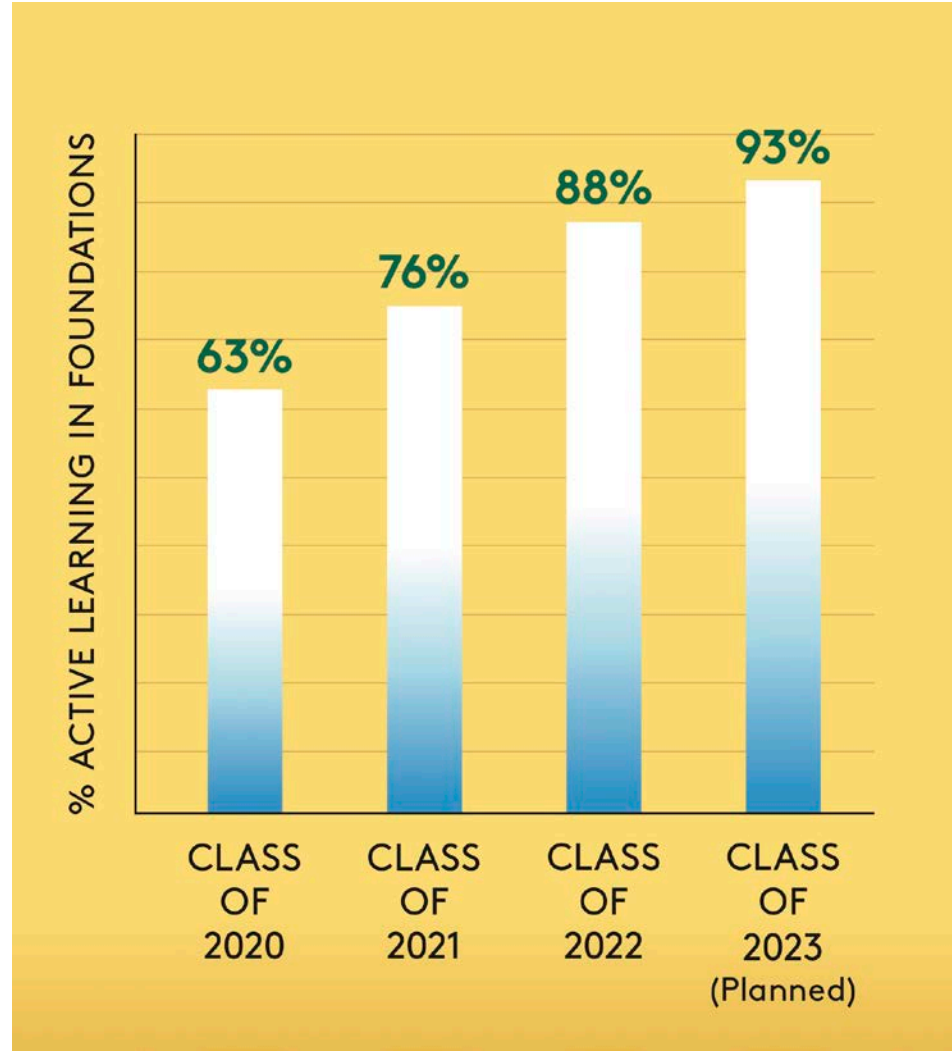
- **Pre-learning:**
  - Aligned with objectives
  - Well curated
  - Single source
  - Consistent delivery

Extraneous  
load



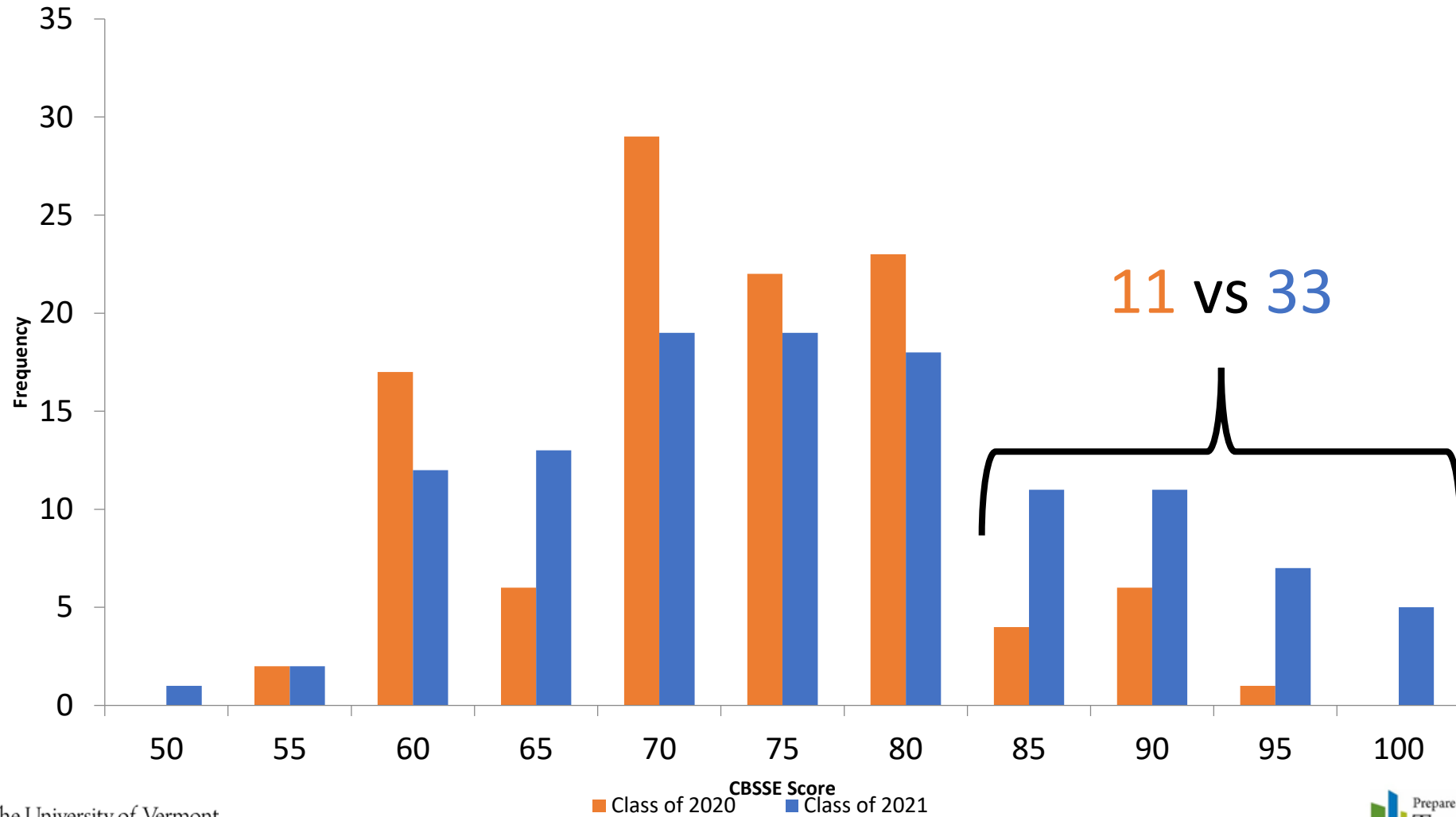
Reduce with  
good  
instructional  
design

- **In-class:**
  - Clear objectives
    - Presentation aligned with session objectives and with pre-learning
  - Consistent delivery – SOPs
  - Give students PowerPoints
  - Make clear how they can get questions answered





# CBSSE Score Frequency Histograms





# LEVEL 1: FOUNDATIONS

AUG      SEP      OCT      NOV      DEC      JAN      FEB      MAR      APR      MAY      JUN

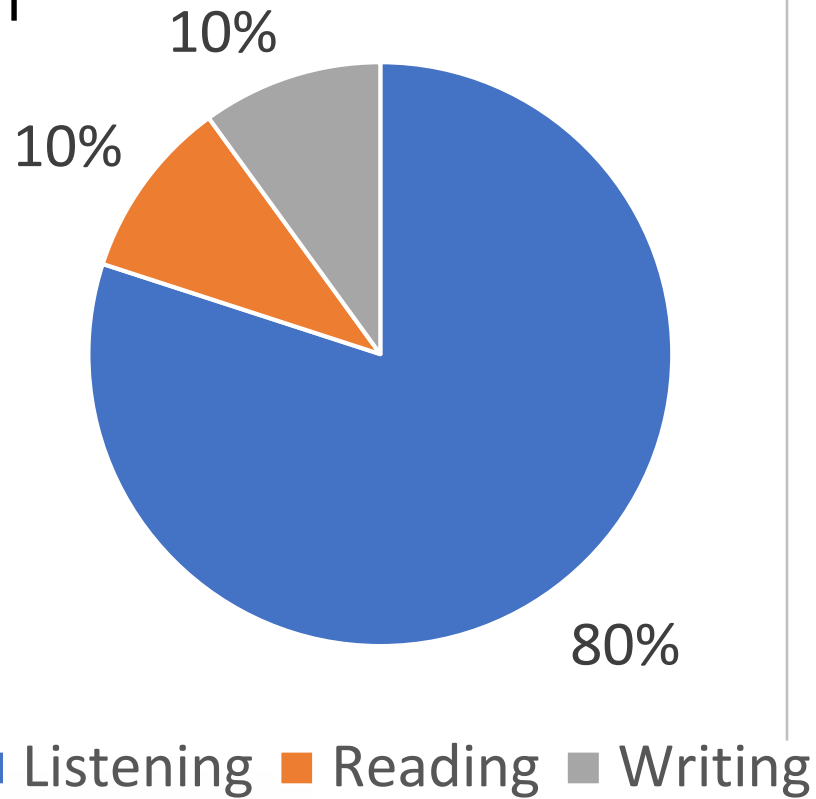
ORIENTATION	FOUNDATIONS OF CLINICAL SCIENCES				VACATION	ATTACKS AND DEFENSES	NUTRI THE GA		AND SYSTEM	VACATION	MEDICAL NEUROSCIENCE
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PROFESSIONALISM, COMMUNICATION AND REFLECTION

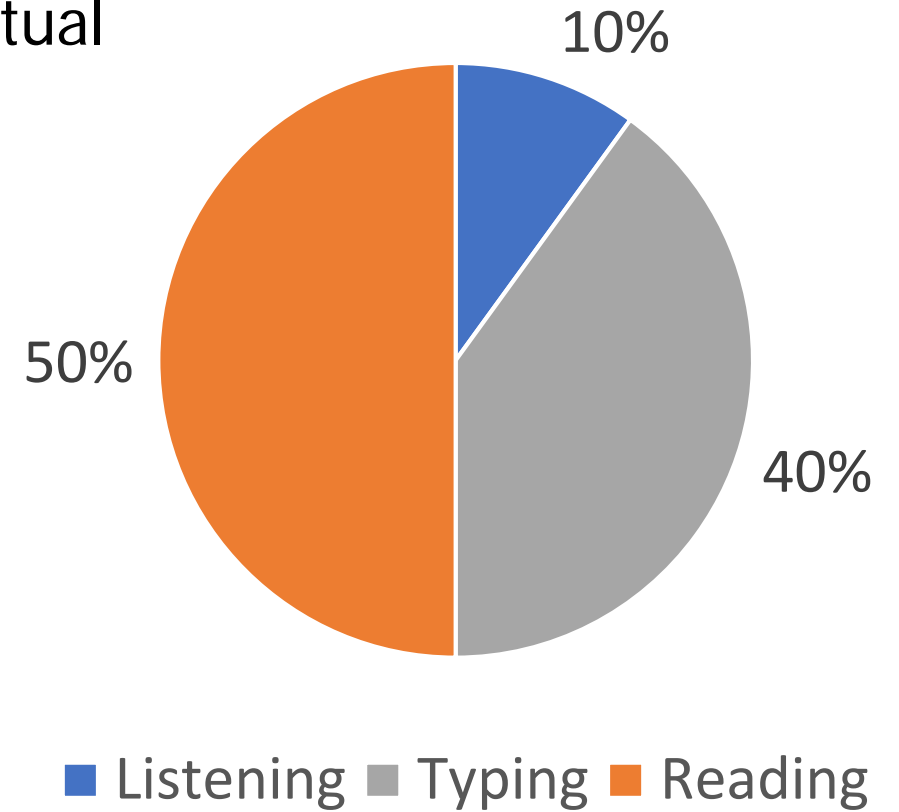
DOCTORING IN VERMONT

# In-person vs virtual teaching – how learners engage

- In person



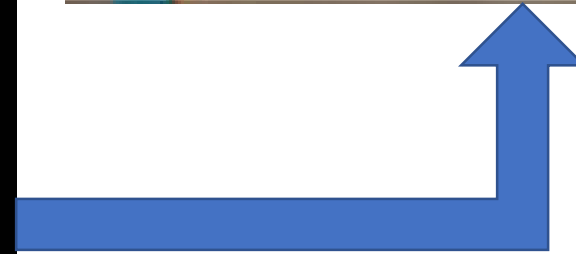
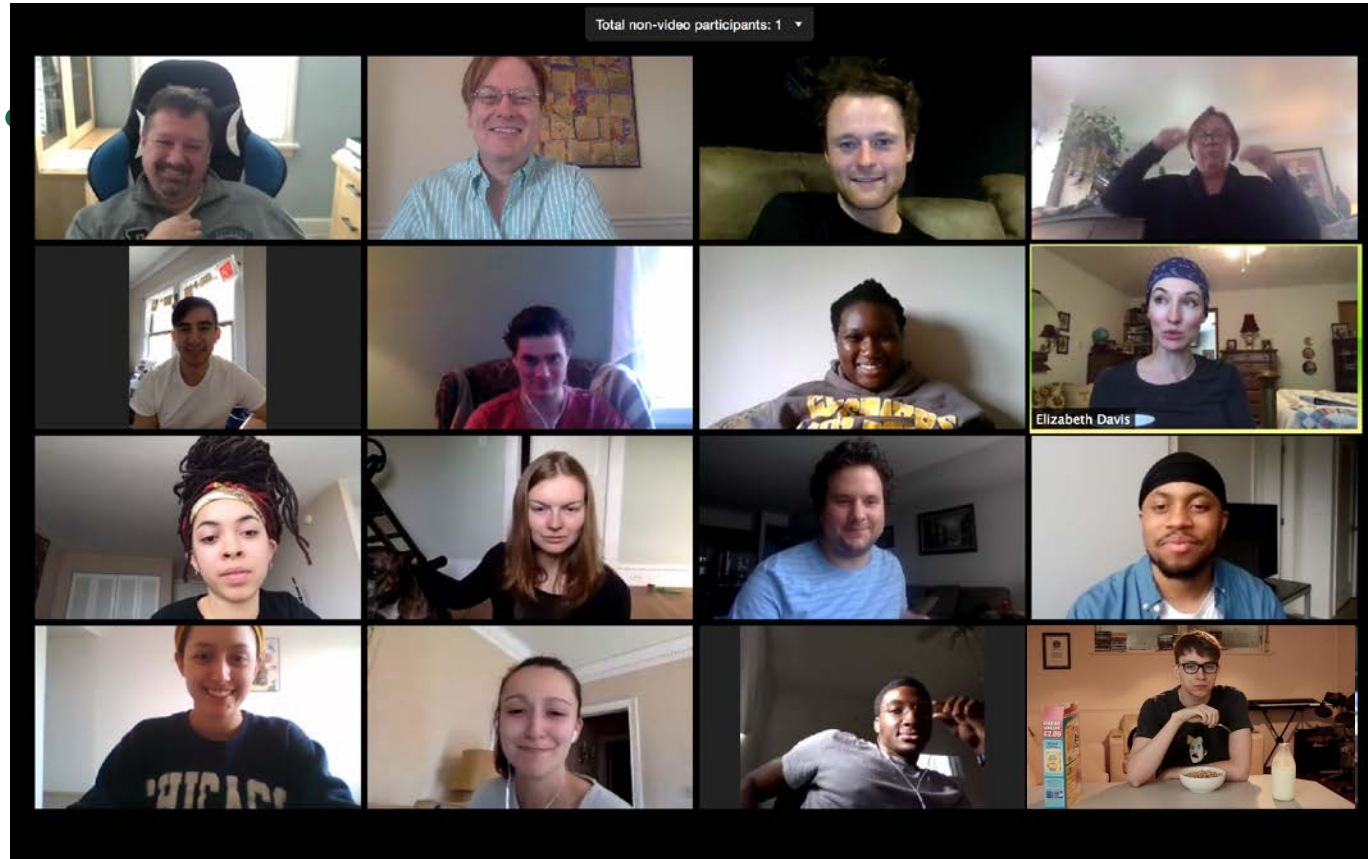
- Virtual



# In-person vs virtual teaching – focus and distraction



# In-person vs virtual teaching – focus and distraction

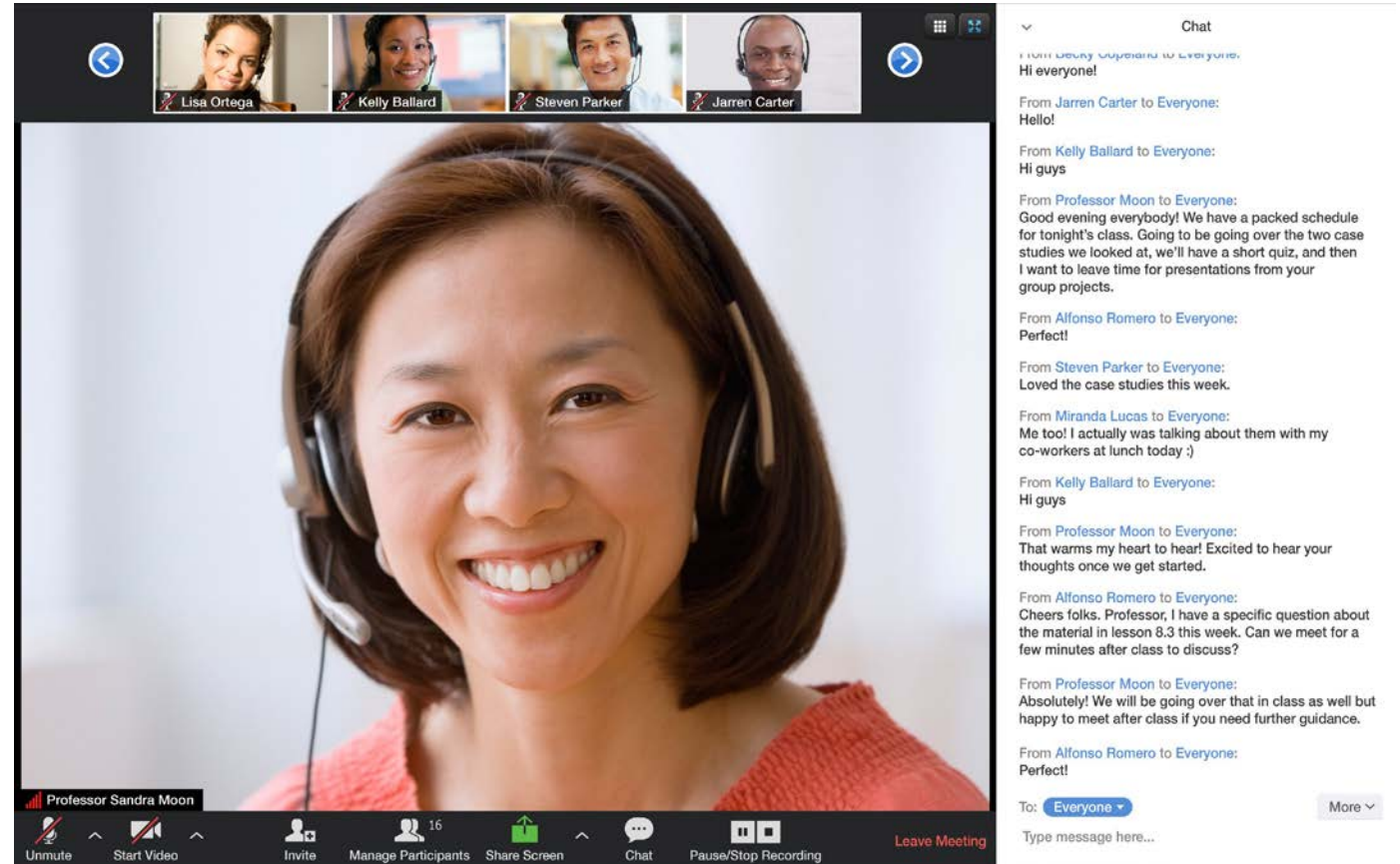




# In-person vs virtual teaching – focus and distraction



# In-person vs virtual teaching - duration



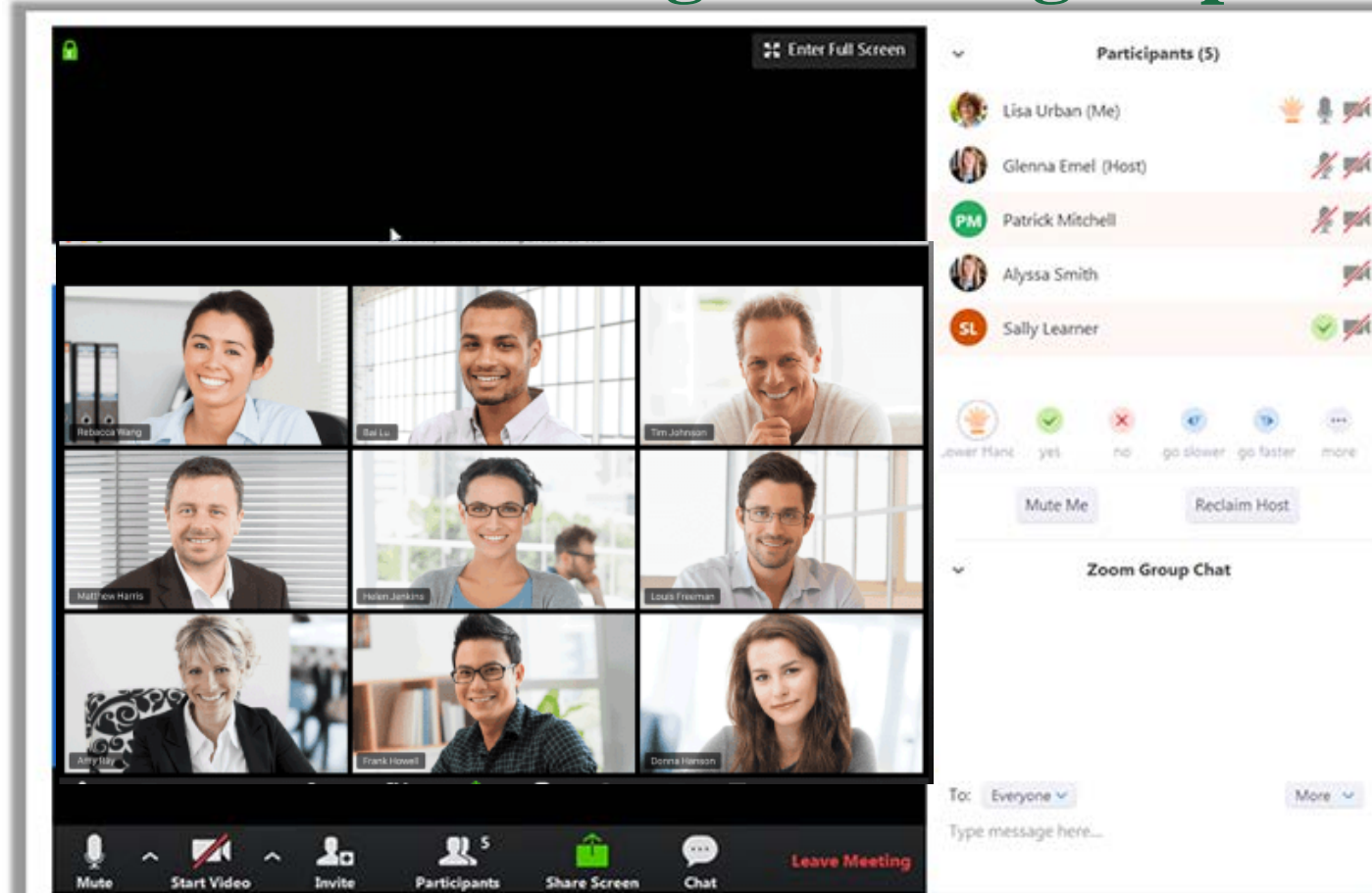


# In-person vs virtual teaching – visual feedback

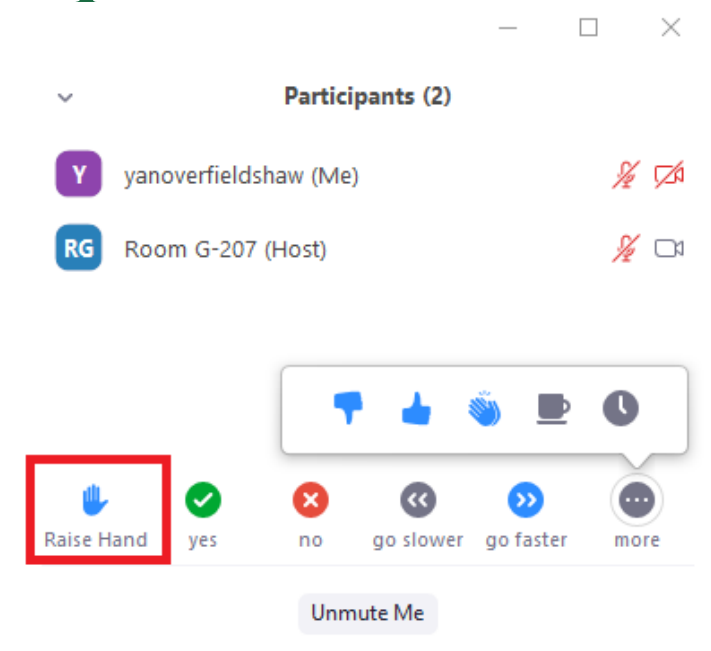




# In-person vs virtual teaching – eliciting responses



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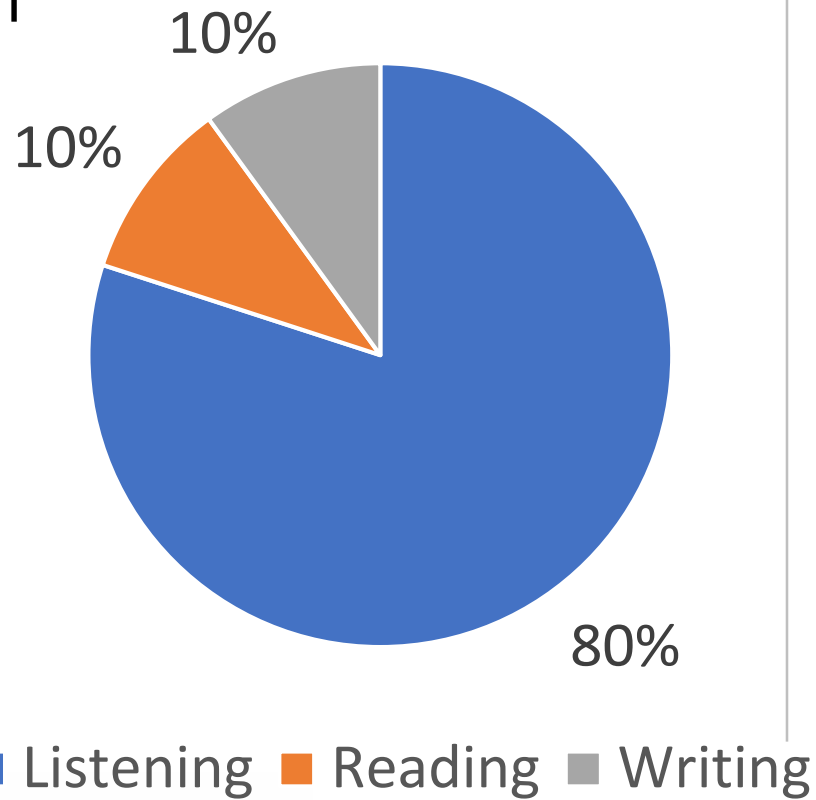
# In-person vs virtual teaching - technology



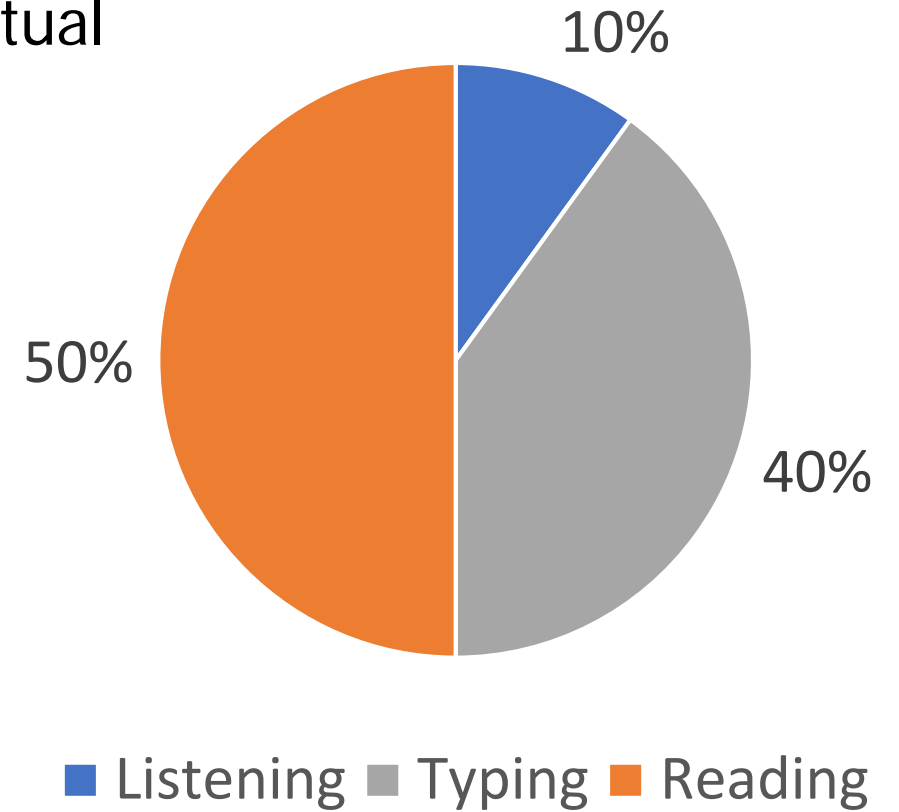


# Second break out – how would you improve this slide? Two minutes

- In person

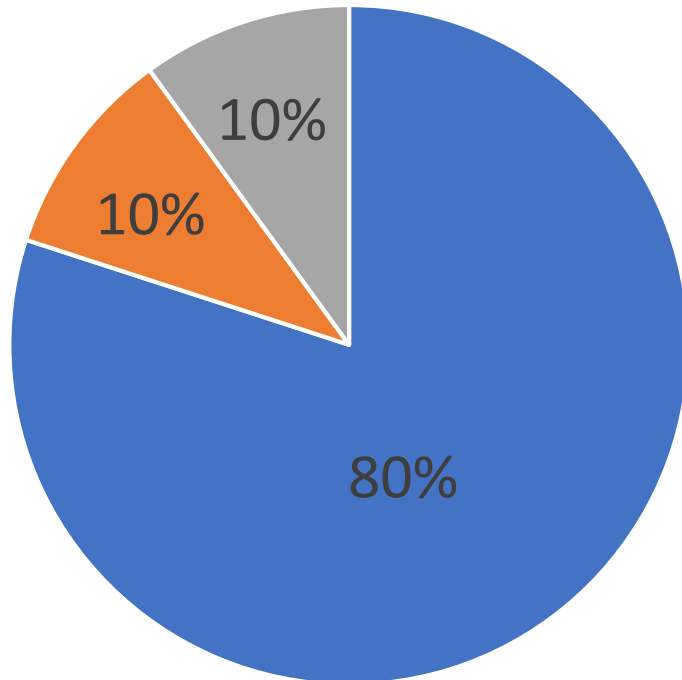


- Virtual

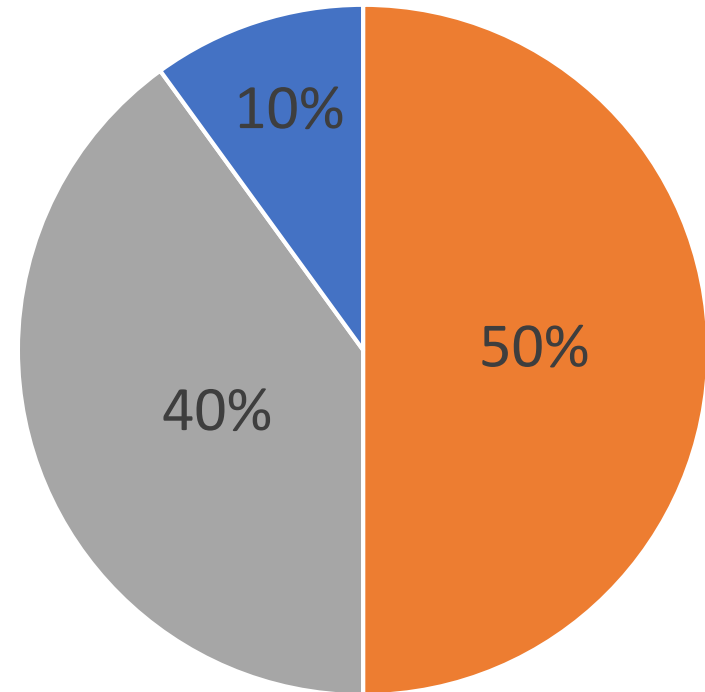


# In-person vs virtual teaching – how learners engage

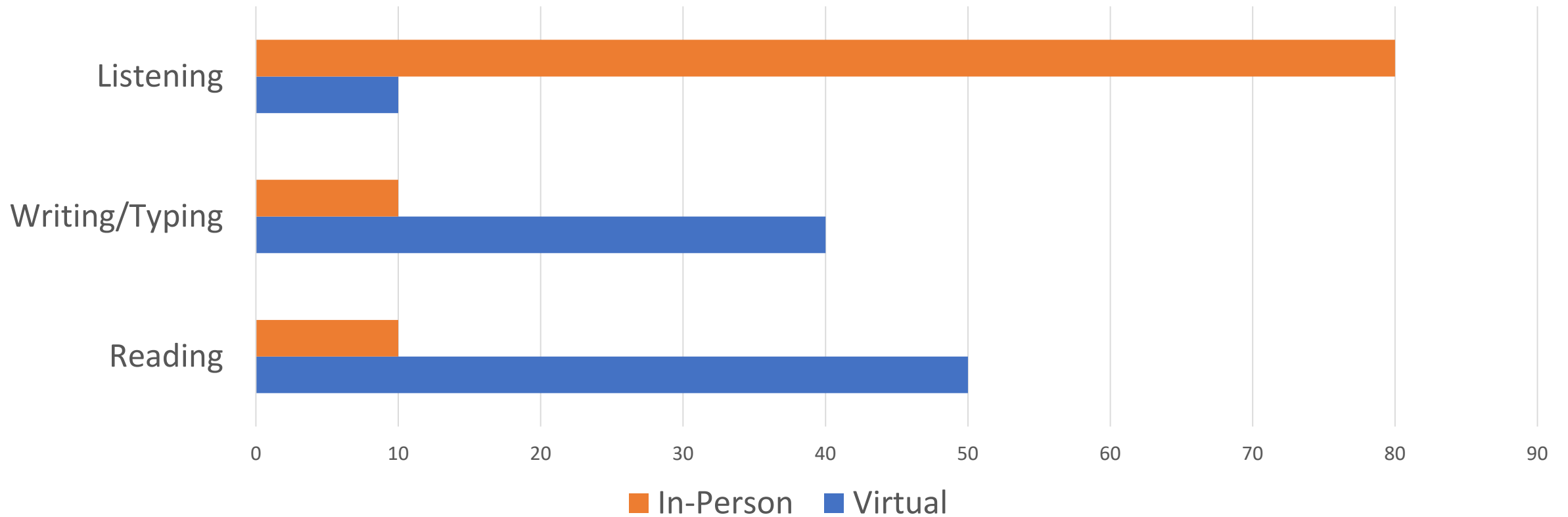
- In person



- Virtual



# In-Person vs Virtual Classroom – How Learners Engage

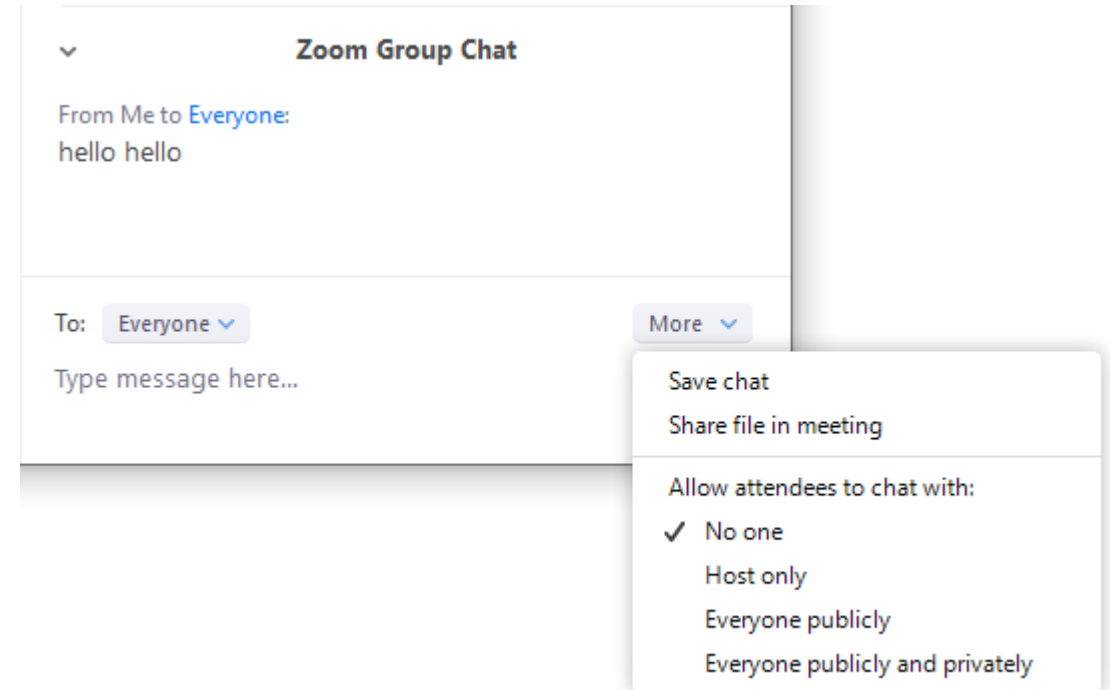


# Tips for effective use of Zoom for teaching

- Know your tech
  - Practice, discuss ahead
  - Join early
- Set the expectations
  - Camera – encourage, acknowledge, use of appropriate backgrounds
  - Chat – how will it be used
  - Questions – how will they be answered

# Tips for effective use of Zoom for teaching

- Chat – best practice
  - Have a second person to monitor for questions (TA, coordinator)
  - Avoid asking questions of the whole group
  - Consider use of private chat function





# Tips for effective use of Zoom for teaching

- Breakout rooms
  - Need to be the host
  - Provide materials they'll need ahead of time
  - Small numbers: 4-5 learners
  - Randomized works well, pre-assigned does not
  - Consider having them do multiple problems/questions at a time

# Summary

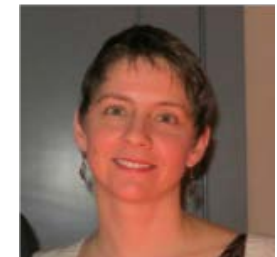
- Virtual environment increases extraneous cognitive load
- Having a well designed, objective driven session decreases extraneous load
  - Efforts you make to improve your teaching now will be beneficial when we are back to normal
- Know your tech

# You are not alone!

- Curriculum Team
  - [active.learning@med.uvm.edu](mailto:active.learning@med.uvm.edu)



- Educational Technologies Team
  - [EdTech@med.uvm.edu](mailto:EdTech@med.uvm.edu)



# Questions?

Please “raise your hand” in Zoom

