Boonshoft
School of Medicine
WRIGHT STATE UNIVERSITY

The science of medicine. The art of healing.

Going Lecture Free for GenZ

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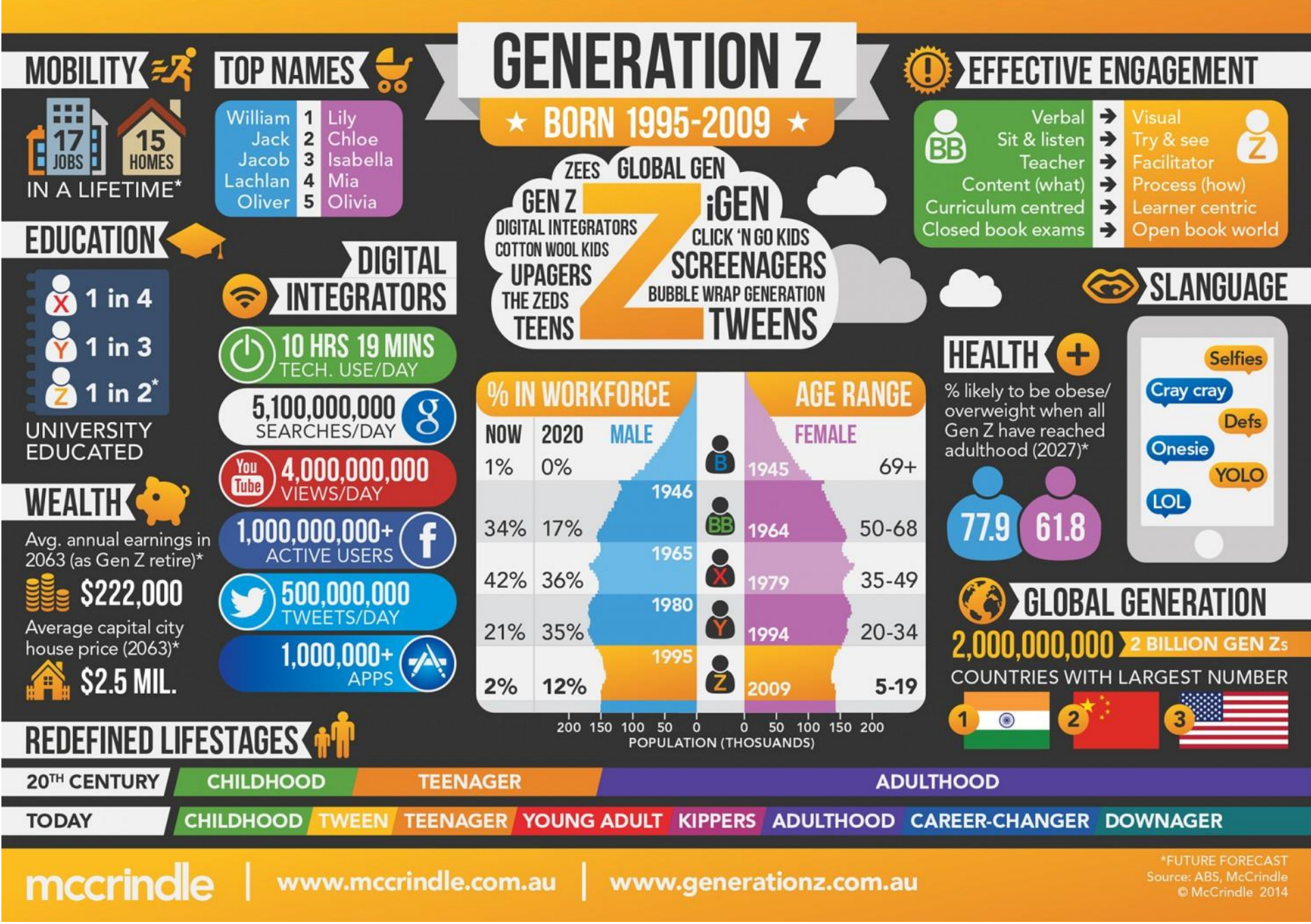
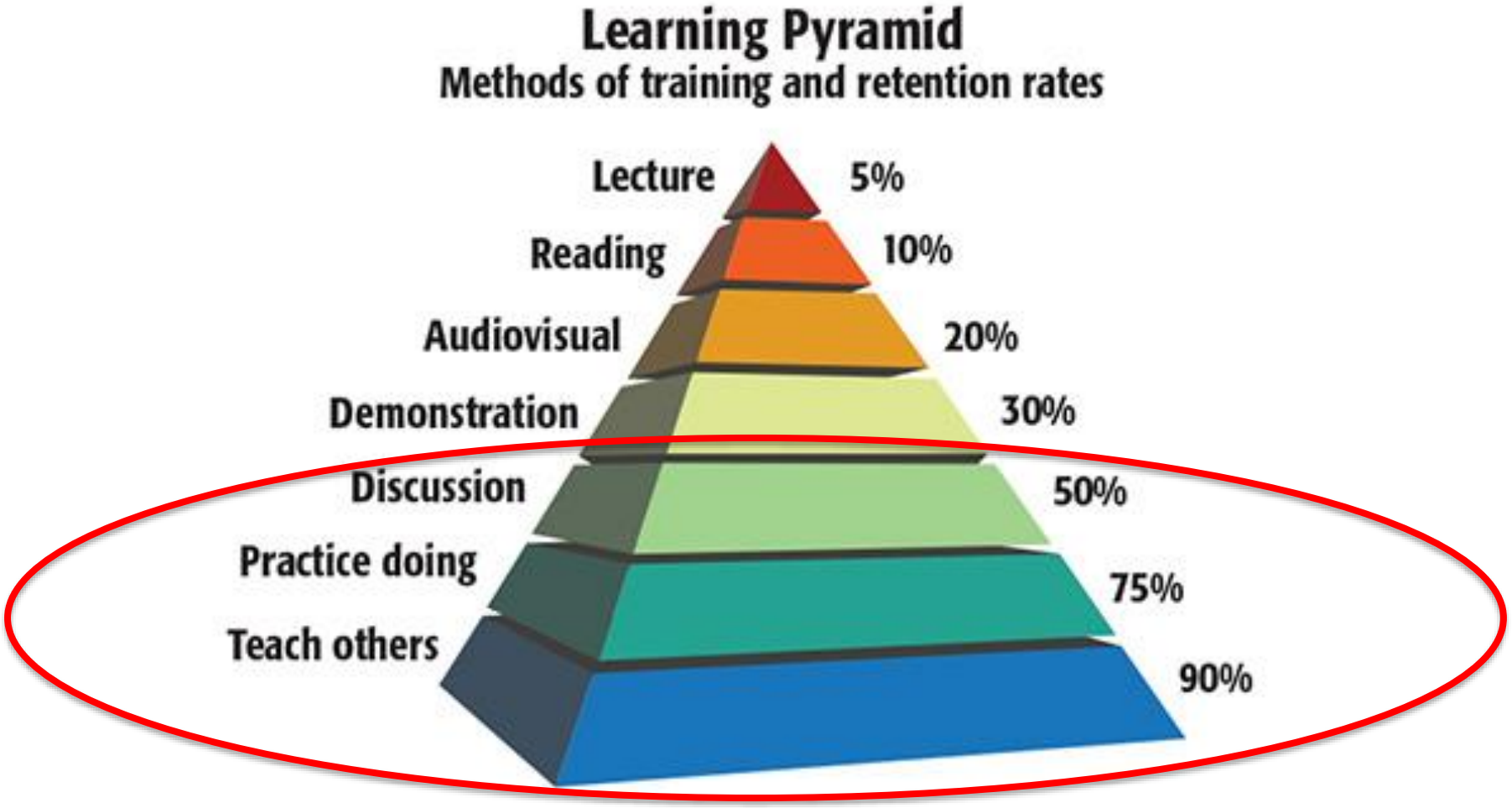


Image obtained from: https://visual.ly/community/infographic/other/generation-z

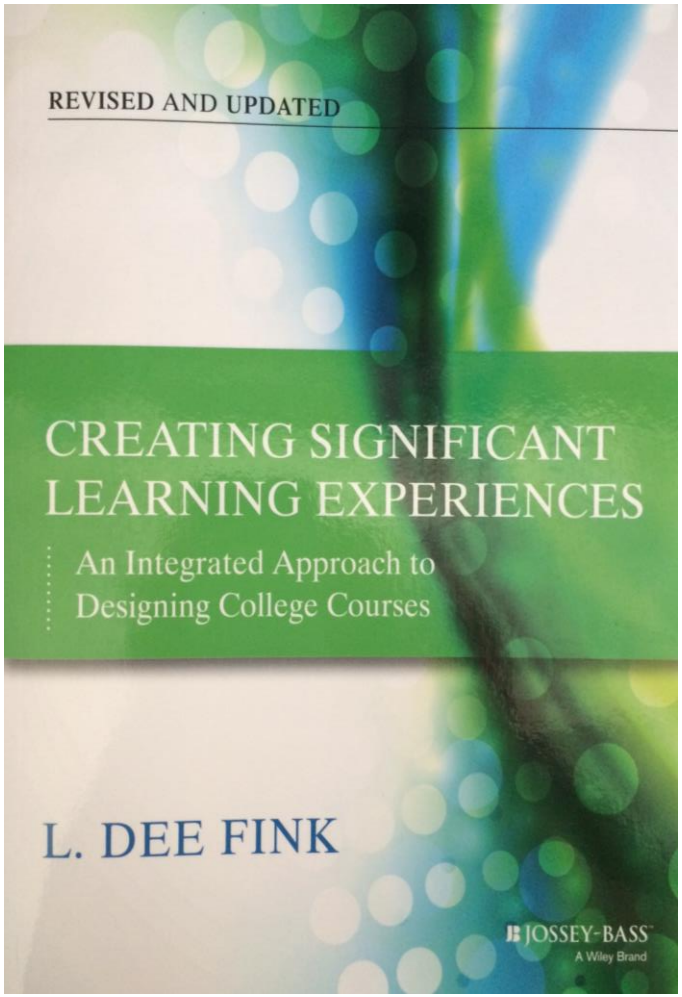
Gen Z Learning Preferences

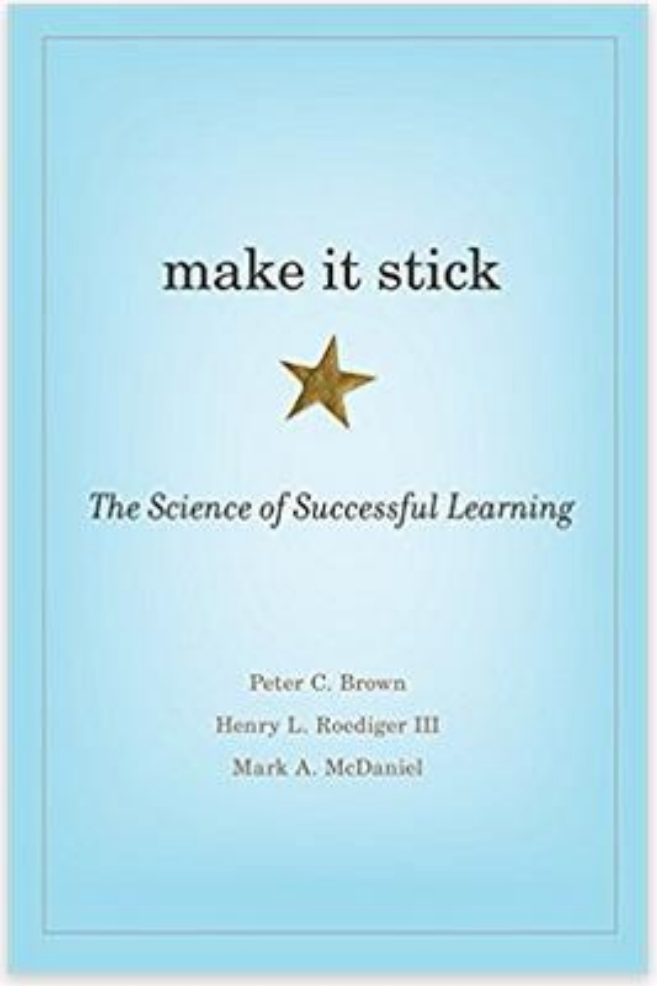
- “Hands on” learning opportunities
- Application to “real Life”
- Desire community engagement
- “Observers” first
- Value independent learning
  - Differs from Millennials (teamwork-oriented approach)
  - View peers and instructors as valuable resources


Learning Pyramid
Methods of training and retention rates
Lecture
5%
Reading
10%
Audiovisual
20%
Demonstration
30%
Discussion
50%
Practice doing
75%
Teach others
90%

No attendance problems

What we did…


REVISED AND UPDATED
CREATING SIGNIFICANT LEARNING EXPERIENCES
An Integrated Approach to Designing College Courses
L. DEE FINK
JOSSEY-BASS
A Wiley Brand


make it stick
The Science of Successful Learning
Peter C. Brown
Henry L. Roediger III
Mark A. McDaniel

Science of Learning Research…

What doesn't work

Cognitive illusions

- Ineffective strategies that produce massive overconfidence

Popular ineffective strategies

- Passive repetitive reading
- Highlighting and underlining
- Summarization
- Keyword mnemonics
- Imagery for text

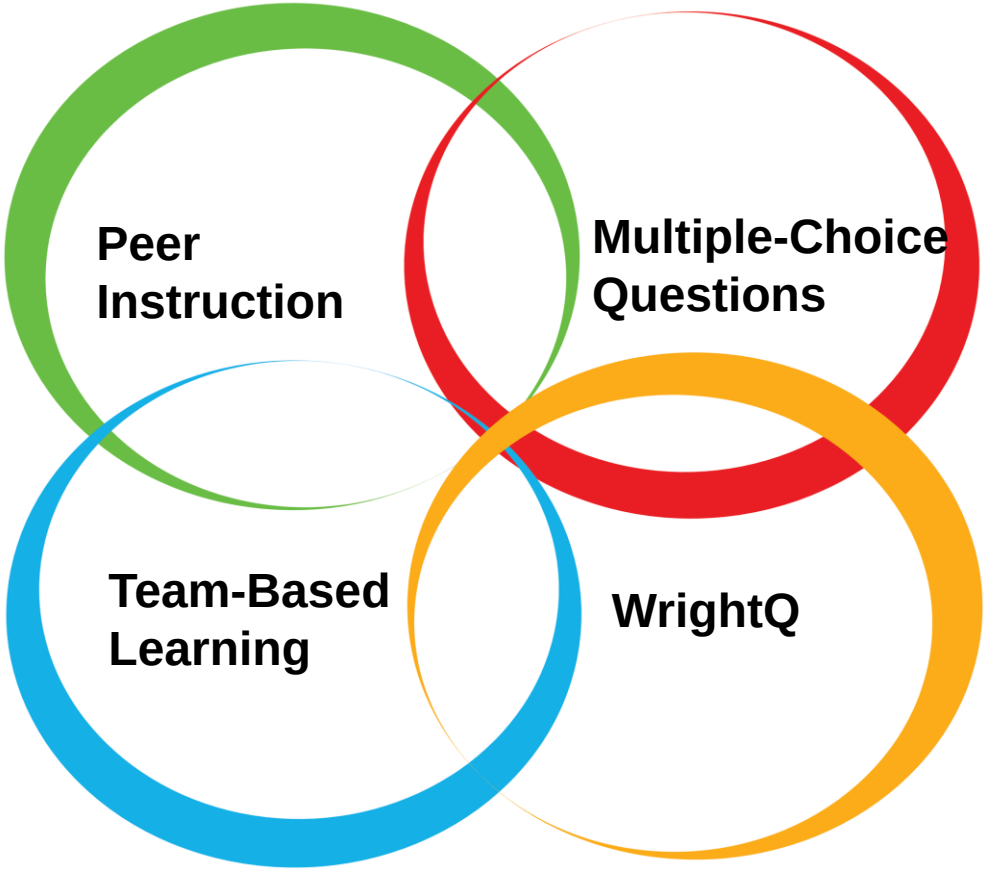
Science of Learning Research…

What does work

- Interleaved practice
- Elaborative interrogation
- Self-explanation
- Distributed practice
- Practice testing
- Retrieval-based learning

Foster a Growth Mindset

- Willingness to learn from reading
- Get comfortable with less than full mastery of material before the session



WrightCurriculum

DISTRIBUTED PRACTICE

INTERLEAVING

READING

Peer Instruction

Students answer problem sets individually with ARS, then peer instruct and re-answer individually

- Retrieval-based learning
- Elaborative interrogation
- Self-explanation
- Practice testing
- Lots of immediate feedback

Randomized Seating

Question Quality

- Difficulty is just right
- Application is the GOAL

Masked Polling

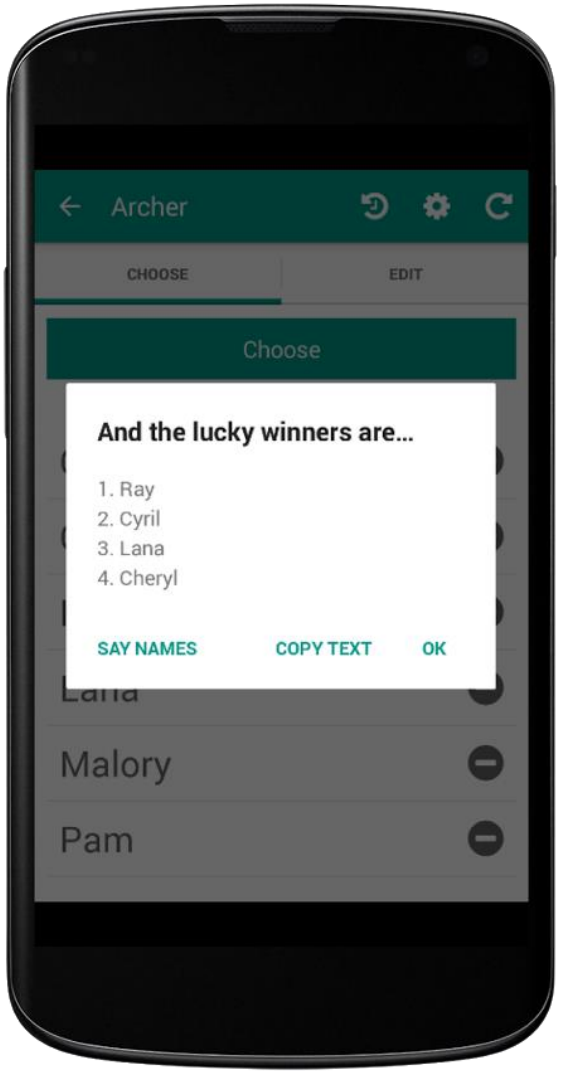
Without influencing student discussion or risking data integrity, faculty can see poll results and scorekeepers can see an answer key.

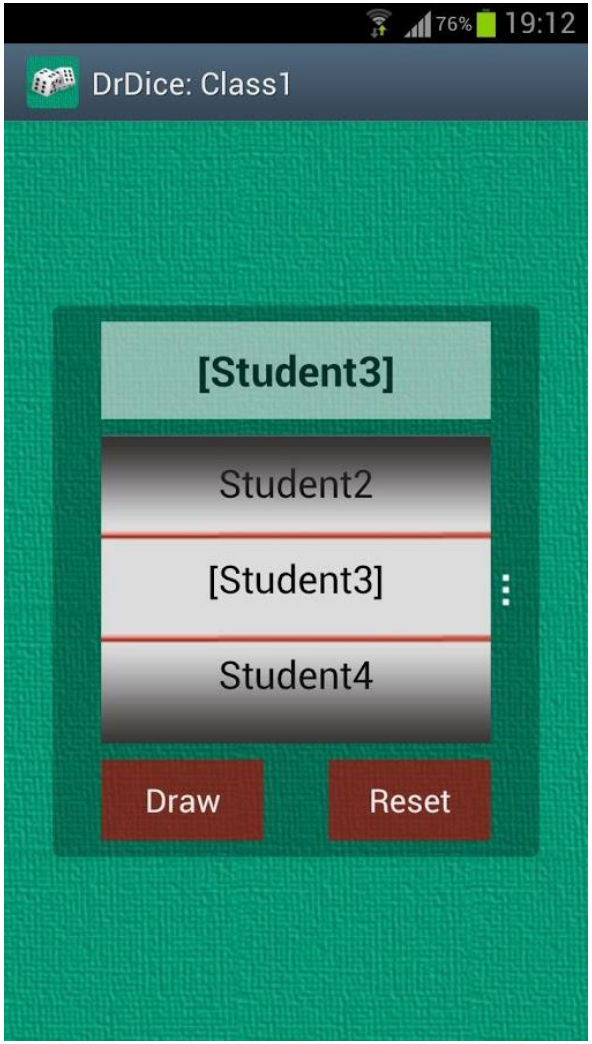
Pairing Up

Focus on learning through discussion with peers

(not necessarily pairs)

Random Student Selection





PI Develops Public Speaking Skills

- Important skill as a physician
- Defending answers
- Admitting when they don't know
- Allows practice in a safe environment

Q1:

A 58-year-old man presents to his physician complaining of increased urinary frequency over the last week. PMH: type II diabetes, hypertension (HTN). Medications: lisinopril, hydrochlorothiazide, metformin. A medication was added 1 week ago that works in the PCT to decrease Na^+ and glucose re-absorption. Which of the following medications was most likely added to his regimen?

A. Acetazolamide
B. Bumetanide
C. Conivaptan
D. Dapagliflozin
E. Mannitol

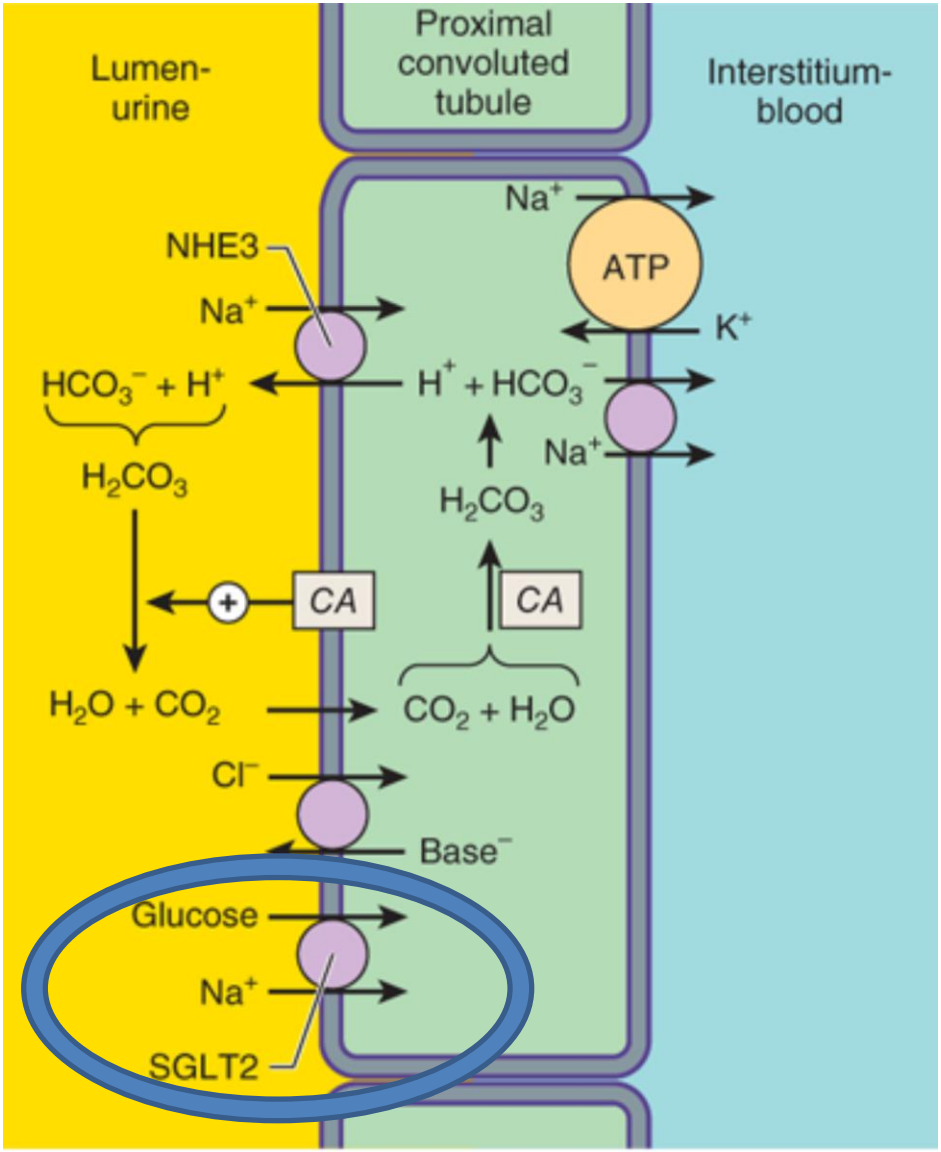


Figure 15-2 in Diuretic Agents, Katzung BG. *Basic & Clinical Pharmacology, 14e;* 2017. Available at: https://accessmedicine.mhmedical.com/content.aspx?bookid=2249&sectionid=175217531

Important Considerations

- ✓ How to read a textbook to maximize learning
- ✓ Size and difficulty of pre-assignment
- ✓ Plan on 2 hours of preparation for each 1 hour in class activity
- ✓ Need time immediately after session to consolidate knowledge

Team-Based Learning

Teams of 6 students (long-term) making decisions on authentic problems with inter-team debate

- Retrieval-based practice
- Elaborative interrogation
- Practice testing
- Lots of immediate feedback
- Continuous peer interaction & communication

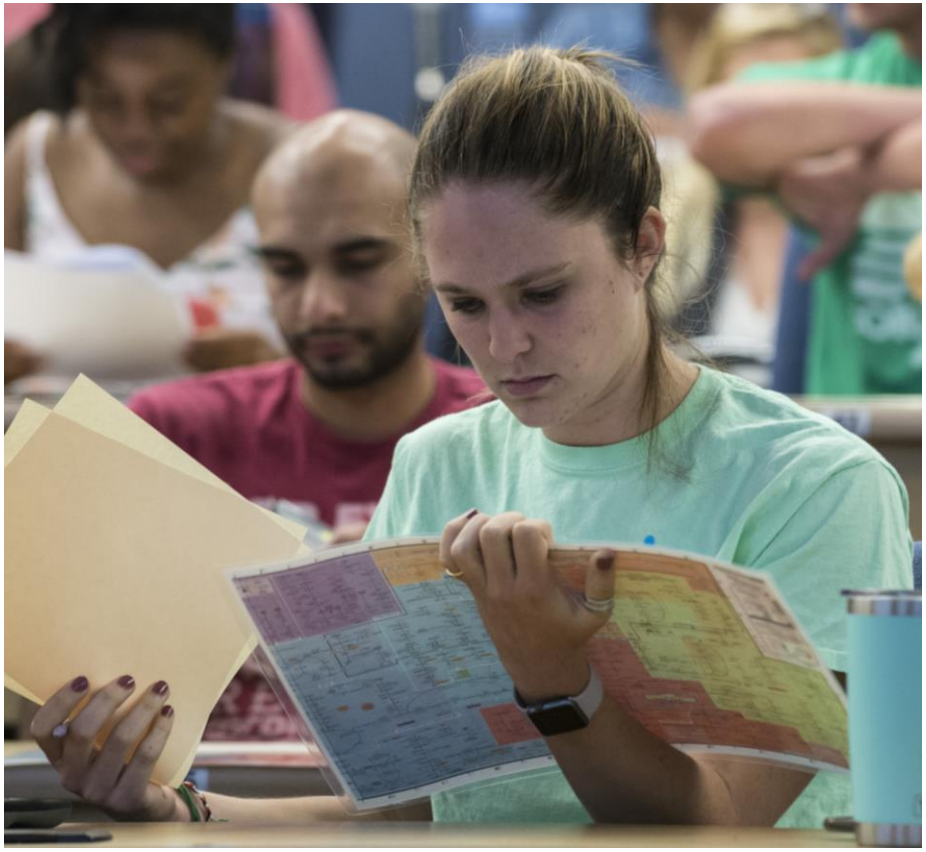
Our version of Problem Based Learning with a bit more structure (teams of 6, different from TBL teams)

- Elaborative interrogation
- Self-explanation
- Retrieval-based learning

Multiple-Choice Questions

50 Question exams every 2-4 weeks within a module, taken individually then as a group using IF-AT cards

- Practice-based testing
- Retrieval based learning
- Lots of immediate feedback



Typical Weekly Schedule

Monday		Tuesday		Wednesday		Thursday		Friday	
8 a.m.	Study	8 a.m.		8 a.m.	Class	8 a.m.		8 a.m.	Clinical Med
9 a.m.	Class	9 a.m.	Study	9 a.m.	Class	9 a.m.	Class	9 a.m.	Clinical Med
10 a.m.	Class	10 a.m.	Study	10 a.m.	Class	10 a.m.	Class	10 a.m.	Clinical Med
11 a.m.	Class	11 a.m.	Study	11 a.m.	Study	11 a.m.	Class	11 a.m.	Clinical Med
12:00 p.m.	Break	12:00 p.m.	Break	12:00 p.m.	Break	12:00 p.m.	Break	12:00 p.m.	Break
1 p.m.	Study	1 p.m.	Class	1 p.m.	Study	1 p.m.	Study	1 p.m.	CM-Preceptor
2 p.m.	Study	2 p.m.	Class	2 p.m.	Study	2 p.m.	Study	2 p.m.	CM-Preceptor
3 p.m.	Study	3 p.m.	Class	3 p.m.	Study	3 p.m.	Study	3 p.m.	CM-Preceptor
4 p.m.	Study	4 p.m.	Class	4 p.m.	Study	4 p.m.	Study	4 p.m.	CM-Preceptor
5 p.m.		5 p.m.	Study	5 p.m.		5 p.m.		5 p.m.	CM-Preceptor

What were the pleasant surprises?

- 100% of class progressed into second year
- Retake exams scored much higher than previous cohorts
- Students embrace collaborative work and SDL.
- Most all students make use of science of learning
- Students really get to know everyone in their class!

Why such good outcomes?

Our emphasis on **retrieval based learning**

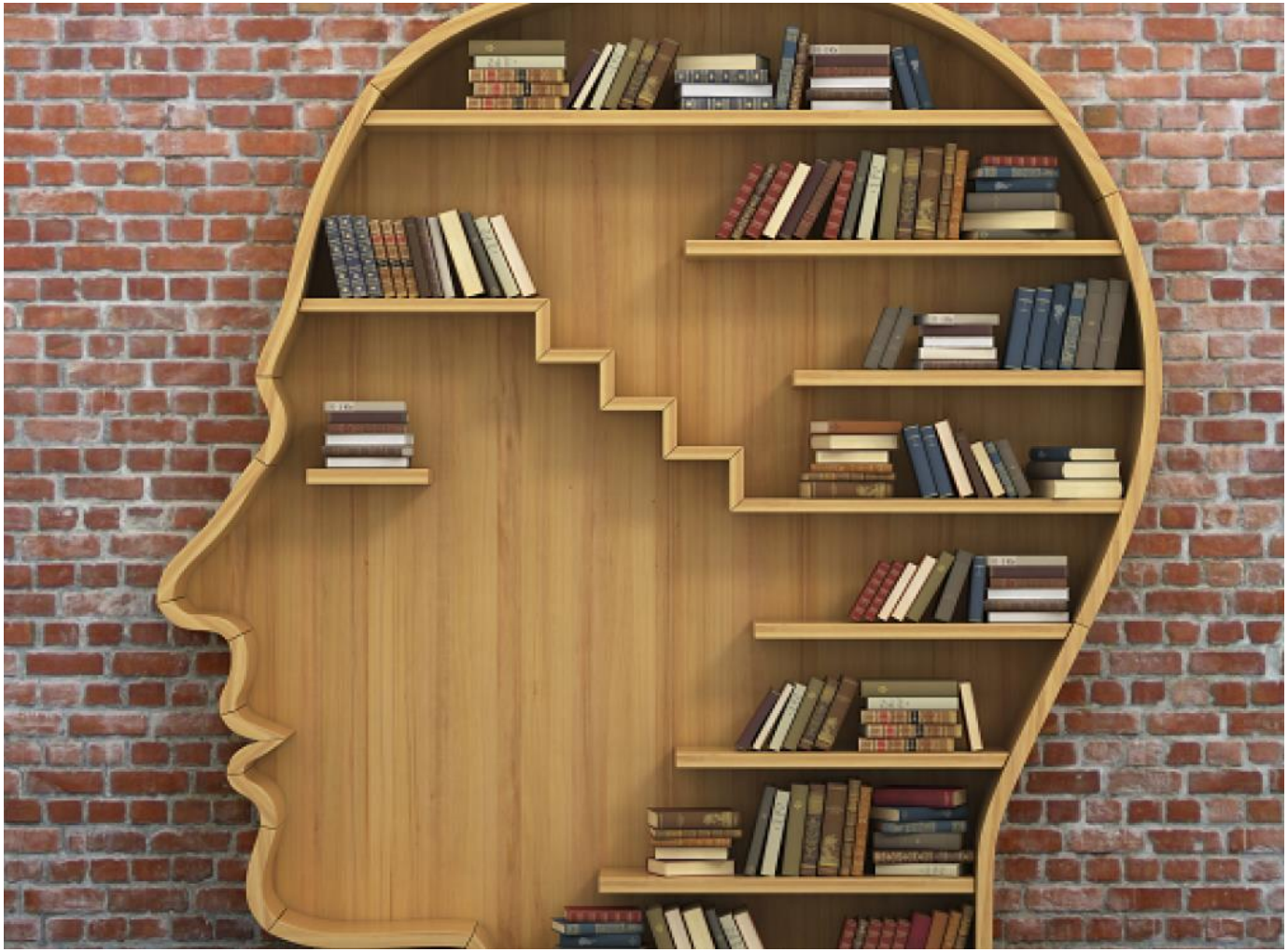
Lessons learned…

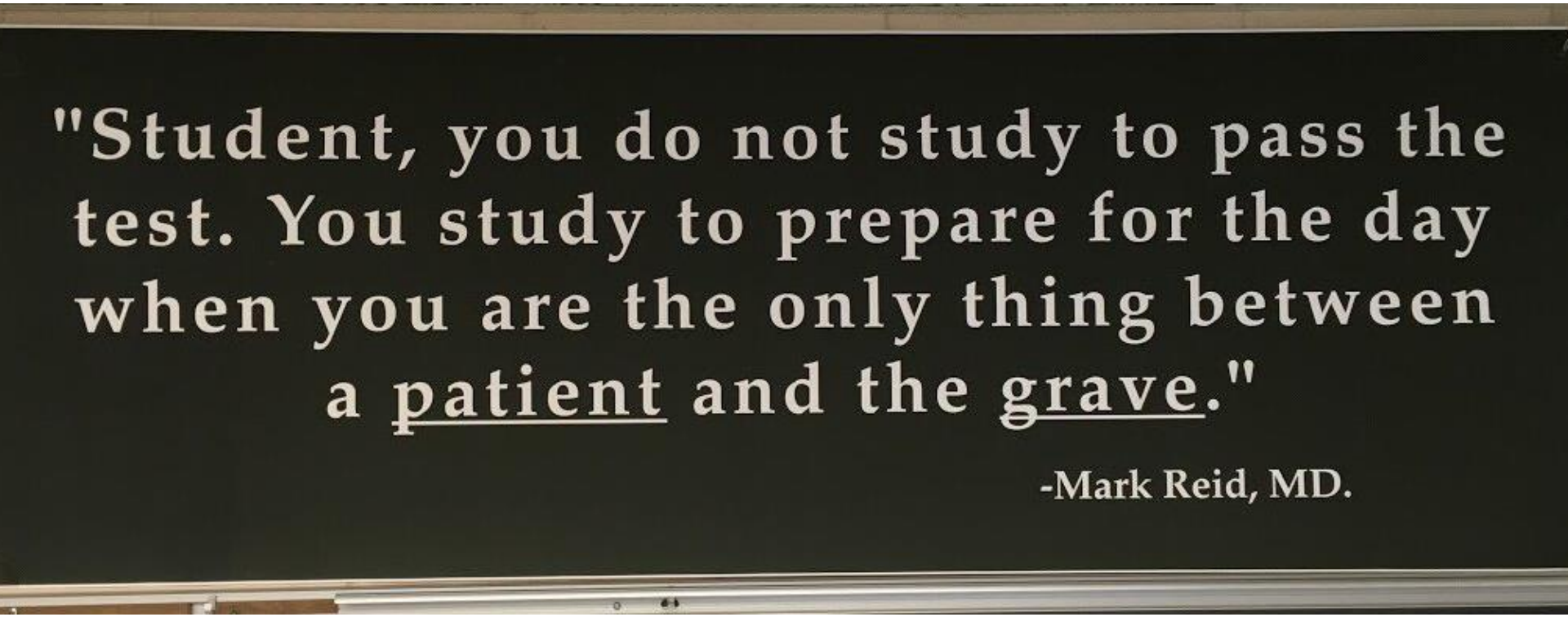
What we did right…

- Utilizing true backward design principles for the curriculum as a whole and for the modules
- Establishing a policy of maximum of 20 hours/face time per week in Foundations Phase (most modules average is 15 hours/week)
- Holding firm for faculty NOT doing lectures
- Establishing consistency across modules for the teaching/learning sessions
- Getting constant feedback from students
- Being flexible when possible (made a change mid-year with Professional Identity Course and when CHW in the community “folded”)

Field testing is crucial

- All teaching and learning modalities had been used in legacy curriculum for several years
- Multi-system course “Staying Alive” — 3rd iteration by the time *WrightCurriculum* began
- Professional Identity: Answering the Call—had been previously done as an elective for students




"Student, you do not study to pass the test. You study to prepare for the day when you are the only thing between a patient and the grave."
-Mark Reid, MD.

Student progress

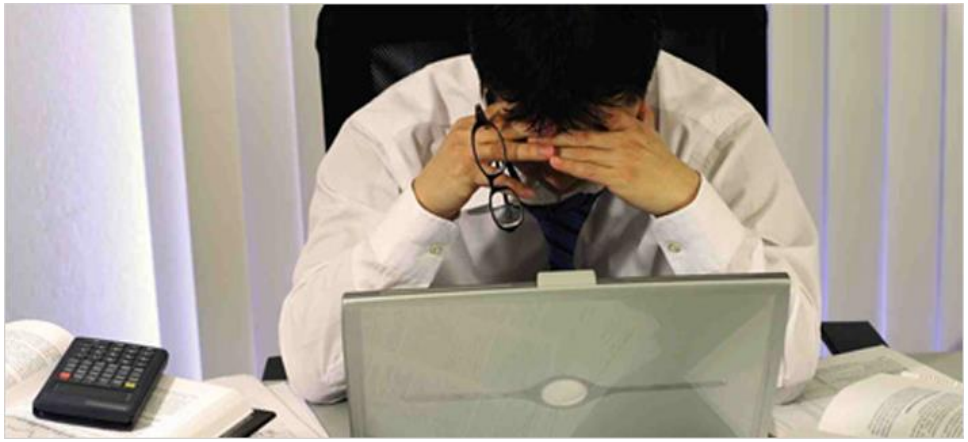
- With daily assessments we know student progress and can intervene early

- Daily assessments do bring fatigue — until students fully understand that they do not need to get everything right the first time
  - Assessments are “low stakes”

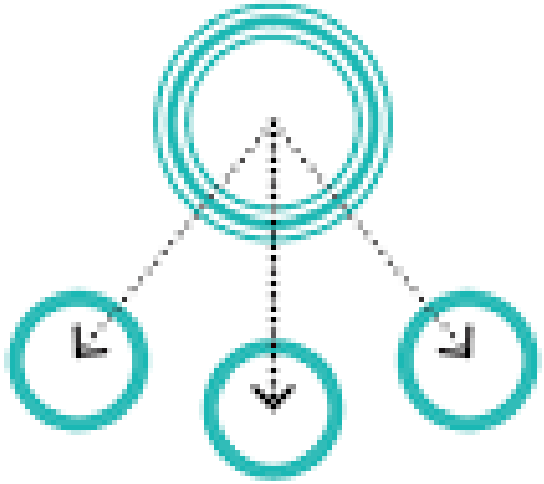
Dedicated core teaching faculty

- Fewer “cameo” appearances
- Increased primary care physician time

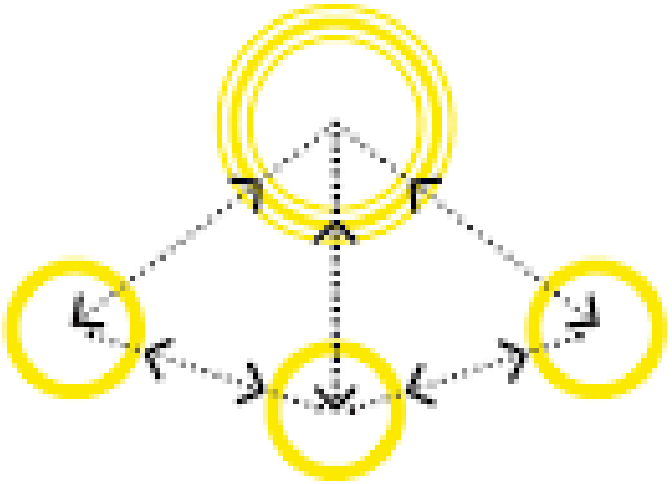
Faculty excitement…and exhaustion



Facilitation is a harder skill to learn than lecturing



One directional dissemination of knowledge through a teacher



Accompanying and shaping a learning process together

If we could do it again…

- Better anticipate faculty needs (increase in FTE to support)
- Would not introduce another system change at the same time!
- Better explain the “Why” and the “Positive Impact” that Gen Z students desire