BUMG PRESENTATION

APRIL 21, 2022

Megan Sullivan, PhD

Faculty Director of the Inclusive Pedagogy Initiative

Assistant Provost *ad interim*, Academic Assessment

Associate Professor, Rhetoric, College of General Studies

msullvan@bu.edu

Deborah Breen, PhD

Director, Center for Teaching & Learning

dfbreen@bu.edu

GETTING STARTED

- Preferred name
- Add pronouns if you wish
- Live Transcript is enabled (Zoom)
- Recording is activated

Deborah Breen and Megan Sullivan

HOW DO YOU KNOW YOUR TRAINEES AND STUDENTS ARE LEARNING?

OUR PLAN FOR TODAY

Part 1: Laying the Foundation for an Inclusive, Learner-Centered Environment

Part 2: Strategies and Tools for “Making it Stick” in a Learning Environment

Part 3: Your Questions

PART 1

Laying the Foundation for an Inclusive, Learner-Centered Environment

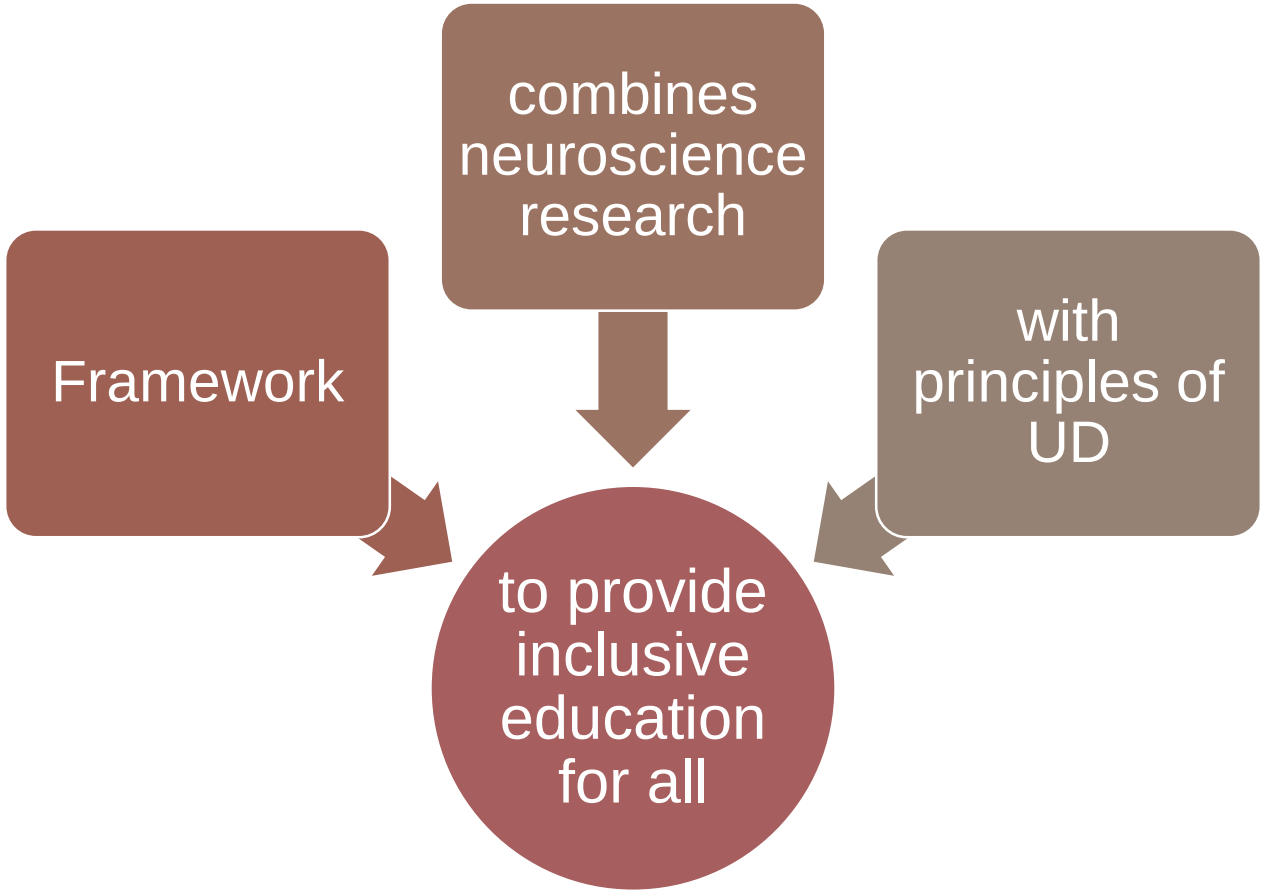
INCLUSION AND LEARNING

Research suggests that students will be more motivated in learning environments that:

- Recognize them
- Draw relevant connections to their lives
- Respond to their unique concerns

(Ambrose, S. A., Bridges, M.W., DiPietro, M. & Lovett, M.C. (2010). How learning works: Seven research-based principles for smart teaching. San Francisco, CA: Jossey Bass. See "Inclusive Learning Strategies" from the Poorvu Center for Teaching & Learning, Yale University.


LEARNING IS SOCIAL AND RELATIONAL


combines neuroscience research
Framework
with principles of UD
to provide inclusive education for all

WHAT IS (UDL)?

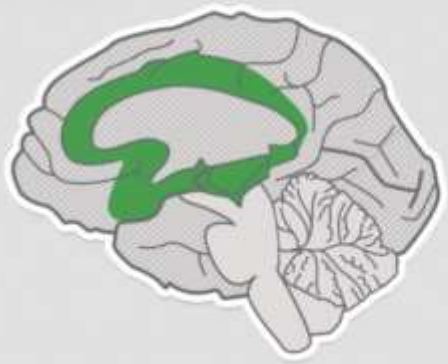
THREE CORE PRINCIPLES OF UDL

multiple means of engagement

multiple means of representation

multiple means of action and expression

AFFECTIVE NETWORKS:
THE **WHY** OF LEARNING



Engagement

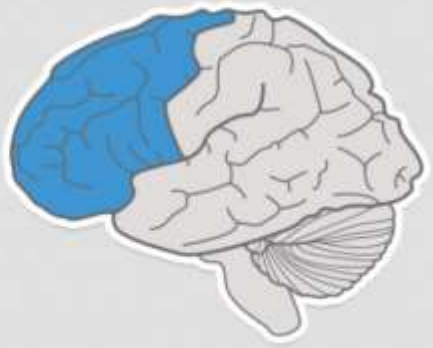
For purposeful, motivated learners, stimulate interest and motivation for learning.

RECOGNITION NETWORKS:
THE **WHAT** OF LEARNING

Representation

For resourceful, knowledgeable learners, present information and content in different ways.

STRATEGIC NETWORKS:
THE **HOW** OF LEARNING



Action & Expression

For strategic, goal-directed learners, differentiate the ways that students can express what they know.

THREE CORE PRINCIPLES OF UDL (ANOTHER VERSION)

ENGAGEMENT, REPRESENTATION, ACTION AND EXPRESSION DEFINED

Engagement

How learners are motivated and supported

Representation

How content is communicated

Action & Expression

How learning is demonstrated and assessed

UDL IN PRACTICE EXAMPLE: ANATOMY AND PHYSIOLOGY

Engagement	Representation	Action & Expression
How will students interact with anatomical and physiological content?	How will students interact or persist in this study of anatomy and physiology?	How will students demonstrate their understanding of anatomy and physiology?
How will students act with each other and instructor?	How will I provide multiple means of representation for anatomical and physiological topics?	How will I provide opportunities for students to express their knowledge of anatomical and physiological topics?

ENGAGEMENT, REPRESENTATION, ACTIONS AND EXPRESSION: EXAMPLES

Engagement

- Problem based learning
- Students presented with hip fracture before they learn hip anatomy to contextualize info re: clinical relevance

Representation

- Prosected specimens
- Plasticated specimens
- Anatomical models
- Computer aided learning
- Peer and instructor learning

Actions & Expression

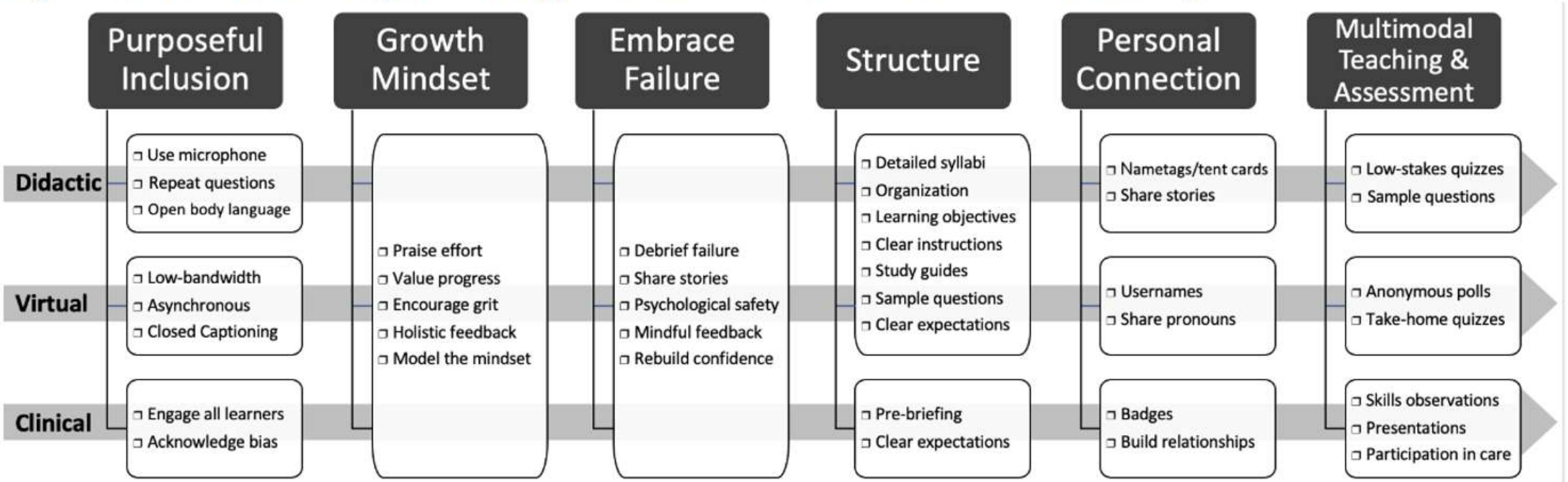
- Assemble and disassemble anatomical models
- Handle and identify bony landmarks
- Histology
- Prosection use

THE SPECIFICS: ANATOMY AND PHYSIOLOGY

Two hour practical classes divided in 25-minute rotation where students rotate among 4 stations:

- **demonstration area** (e.g., faculty member gives interactive tutorial on cadaver)
- **practice spot examination** (e.g., students walk around table to identify structures pinned on prosections)
- **computer-assisted learning** (e.g., groups of students work together on software "Anatomy and Physiology Revealed," McGraw Hill Education)
- **variable learning area** (e.g., varies depending on topic; self-directed activity could include a histology, osteology, radiology, or clinical station)

Figure 1: Inclusive Teaching Themes Applied to Didactic, Clinical, and Virtual Teaching



From Amayo, J., Heron S, Spell N, Gooding H. Twelve Tips for Inclusive Teaching.

INCLUSIVE PEDAGOGY IN MEDICAL EDUCATION

REFERENCES FOR PART 1

Amayo, J., Heron S, Spell N, Gooding H. Twelve Tips for Inclusive Teaching. MedEdPublish doi.org/10.15694/mep.2021.000081.1.

Bolta, Joy Y, Briony Supple, Gerald W. O'Keefe. The Universal Design for Learning Framework in Anatomical Sciences Education. Anatomical Sciences Education. American Association for Anatomy.

CAST (2018). Universal design for learning guidelines version 2.2 [graphic organizer]. Wakefield, MA.

Dickinson, Karen J and Susie L Gronseth (2020) Application of Universal Design for Learning (UDL) Principles to Surgical Education During the COVID-19 Pandemic. 2020 September-October; 77(5): 1008–1012. Published online 2020 Jun 5. doi: 10.1016/j.jsurg.2020.06.005 PMCID: PMC7274614 PMID: 32576451.

Lim GHT, Sibanda Z, Erhabor J, Bandyopadhyay S; Neurology and Neurosurgery Interest Group. Students' perceptions on race in medical education and healthcare. Perspect Med Educ. 2021 Mar;10(2):130-134. doi: 10.1007/s40037-020-00645-6. Epub 2021 Jan 7. PMID: 33415681; PMCID: PMC7790028.

Luke, Karl. (2021). Twelve tips for designing an inclusive curriculum in medical education using Universal Design for Learning (UDL) principles. MedEdPublish. 10. 118. 10.15694/mep.2021.000118.1

PART 2

Strategies and Tools for “Making it Stick” in a Learning Environment

PRINCIPLES OF STICKY LEARNING

Reach

Retrieve

Recode

Reinforce

Rehearse

Review

Reflect

Based on the work of Marilee Sprenger and the authors of Making it Stick: The Science of Successful Learning

REACH: CREATE CONDITIONS FOR LEARNING

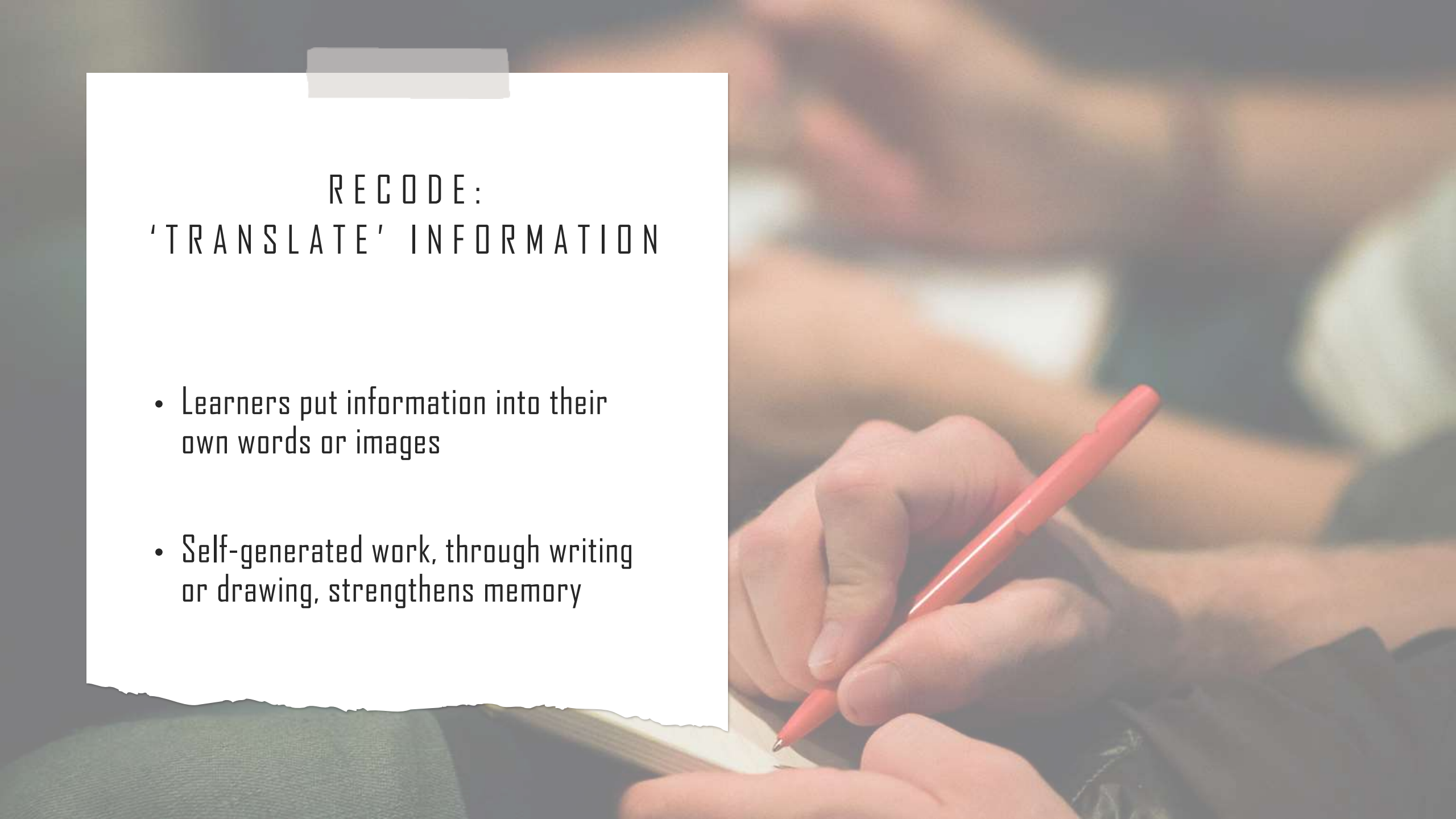
- Active learning opportunities
- Engage emotions
- Consider pacing
- Consider modality

RETRIEVE:
ACTIVATE PRIOR KNOWLEDGE

- Remember earlier information and build upon it
- Reinforce knowledge for later links to new information
- Assessment (or feedback) strategies can aid in effective retrieval

RECODE: 'TRANSLATE' INFORMATION

- Learners put information into their own words or images
- Self-generated work, through writing or drawing, strengthens memory



REINFORCE

- After students 'recode', instructor provides feedback to reinforce learning
- Redirects any misunderstandings and reinforces appropriate interpretation of information

REHEARSE:
EXPLAINING WHAT YOU KNOW

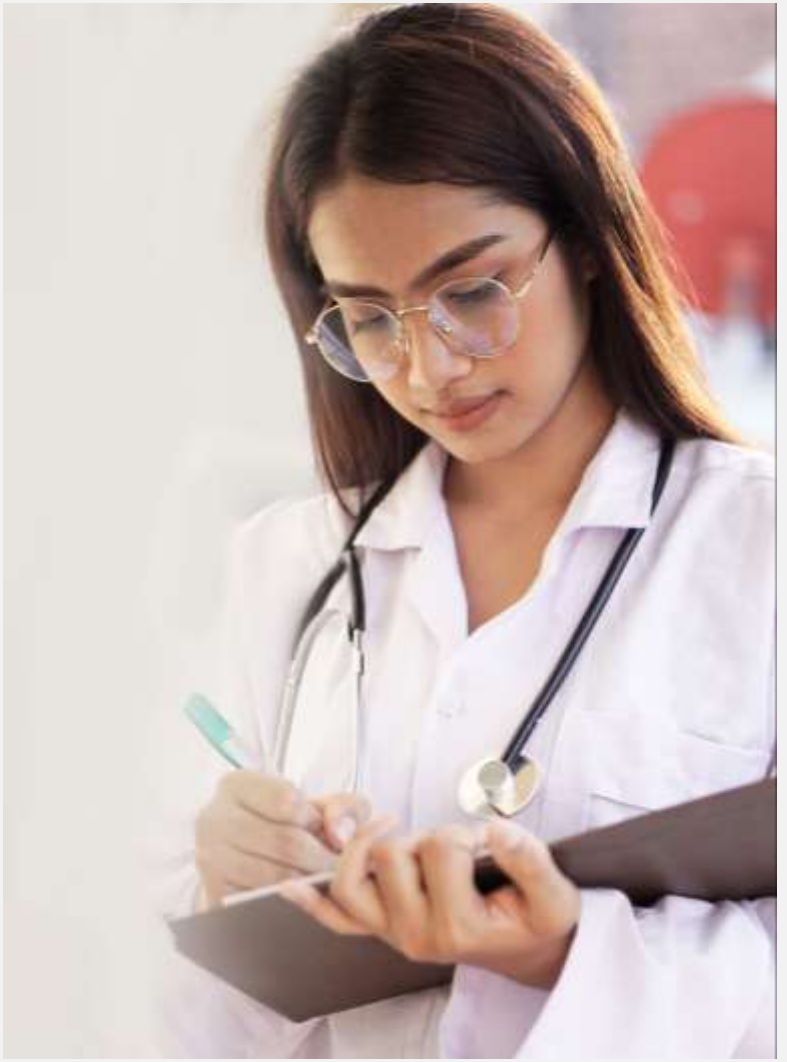
- Verbalizing information engages memory and consolidates learning
- Rehearsing may be informal (e.g., discussion; in the moment responses)
- Or, it may be more formal (e.g., presentations)
- Rehearsal may be to and/or with peers
- Or, it may be to instructors

REVIEW

- Provide opportunities to review content
- Helps students with retrieval practice to strengthen understanding and memory
- May be instructor-led or participatory with individual students or groups of students
- Can be spaced within didactic classes, at the end of modules, and/or at the end of a complete unit

REFLECT

- Reflection provides students with an opportunity to identify strengths and areas for improvement in their learning
- Reflection may provide students with time to identify and plan their learning goals
- Relevant for both classroom and clinical environments
- May be private to student or shared with instructor



EXPANDING THE FEEDBACK ENVIRONMENT

- Be aware of implicit bias
- Consider non-verbal cues as well as verbal choices
- Practice inclusion
- Encourage metacognition: ask student/trainee for their self-assessment of activity before offering feedback
- Provide student/trainee with feedback on what went well as well as your suggestions for targeted improvement
- Support student/trainee in developing a clear plan for improvement
- Role play with colleagues
- Consider recording feedback sessions for your own metacognitive awareness

TOOLS FOR STICKY LEARNING

Blackboard Tools (e.g., Discussion Board, Blogs, Quizzes, Journals)

Pronto (social media tool, available through Blackboard)

Google Suite for collaborative learning, including Google docs, Google slides, Jamboard

Polling and response tools, including Zoom Polls, Clickers, Mentimeter, Poll EV

Collaborative tools such as Padlet, FlipGrid

Social Annotation tools such as Perusall (students can see each other's annotations on a text, video, or image)

****Check with BUMC-IT for other tools that may be available to you AND to identify which tools are centrally supported at BU and/or on the medical campus**

REFERENCES FOR PART 2

Brown, Peter C., McDaniel, Mark A., & Roediger, Henry L. (2014). Make it stick : the science of successful learning. The Belknap Press of Harvard University Press.

Felten, Peter & Lambert, Leo M. (2020). Relationship-rich education : how human connections drive success in college. Johns Hopkins University Press.

Inclusive Teaching Strategies, Yale Poorvu Center for Teaching and Learning, https://poorvucenter.yale.edu/InclusiveTeachingStrategies

Qureshi, Najum S. (2017). Giving effective feedback in medical education. The Obstetrician & Gynaecologist, 19(3), 243–248. doi.org/10.1111/tog.12391.

Sprenger, Marilee (2018). How to teach so students remember (Second edition.). ASCD.

PART 3

Questions

THANK YOU

Reach out to us at

dfbreen@bu.edu and msullvan@bu.edu

Deb Breen and Megan Sullivan