

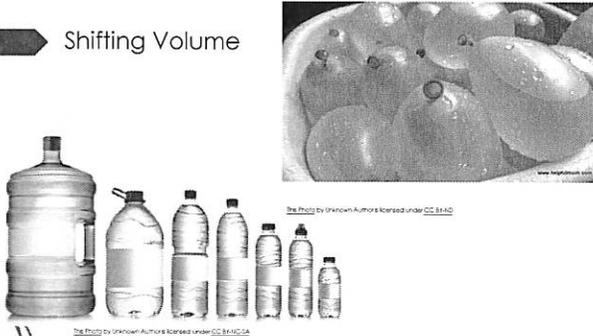
Lifelong Learning and Knowledge Retention
"Make it Stick"

Lisa Lewis EdD, MSN, RN, CNE
&
Midge Bowers, DNP, FNP-BC, CHSE, FAANP

Objectives

- 1 Describe the science of how your students learn
- 2 Recognize and discuss common myths your students believe about successful learning
- 3 Explain strategies that you can offer students to help them learn and "make learning stick"

Shifting Volume



The Photo by Unknown Author licensed under CC BY-ND

The Photo by Unknown Author licensed under CC BY-ND

Overview

- Learning
- Myths
- Strategies
- Practical Application

"MAKE IT STICK: The Science of Successful Learning"

Peter C. Brown and Henry L. Roediger III

- Concepts
- Retrieval strategies
- Effective vs ineffective

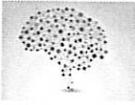
Neuroplasticity

- Difference between knowledge and conceptual understanding.
- Effective learning
 - Improves performance
 - Changes your brain and intellectual capabilities



How to make learning "Stick"

- Anchor
- Link
- Mental Models



- Encoding
- Consolidation
- Retrieval



Learning

- Requires memory
- Is a lifelong endeavor
- Is an acquired skill
- Takes effort

What strategies do you use for learning?

Dispelling Myths- What doesn't work!

1 Mass Practice	2 Rewriting notes	3 Rereading
--------------------	----------------------	----------------

Dispelling Myths- What works!

1 Spaced Practice	2 Retrieval practice	3 Interleaving
----------------------	-------------------------	-------------------

What works

- Spaced Practice
 - Some forgetting between practice
 - Flashcards

What works

- ▀ Retrieval Practice
 - ▀ Self-quizzing
 - ▀ Low stakes testing

What works

- ▀ Interleaved Practice
 - ▀ Switch from one topic to another
 - ▀ Variability in types of problems and information

Volume Shifts

INTAKE-OUTPUT CHART							
Name	Naama Edmaif			Registration number	601521		
Date	27-07-2017						
TIME	INTAKE (ml)			OUTPUT (ml)			
MORNING SHIFT	Method	Site		Urine	N/G Aspirate	Drains Stoma etc.	Stool B.O.
	Temperature	Volume	Rate				
07:00 a.m.	Type of Fluid	Additions per line	Amount	Urine	N/G Aspirate	Drains Stoma etc.	Stool B.O.
07:00 a.m.	Normal saline in Dextrose 5%	1.0m AXI	700				
09:00 a.m.				250			
09:05 a.m.					32		
12:00 noon	Dextrose 5%	1/2	700				
1:00 p.m.					32		
1:30 p.m.				150			BO v.1
1:50 p.m.				200		25	
2:00 p.m.		Remainder	100				
		Total at end of shift	700	400	64	26	

Create mental models



The illustration shows a human head in profile, looking upwards and to the right. Several words are scattered around the head, appearing to be part of a thought process or mental model. The words include 'situation', 'New Idea', 'Perception', and 'innovation'. The words are in various orientations and sizes, suggesting a dynamic and evolving mental space.

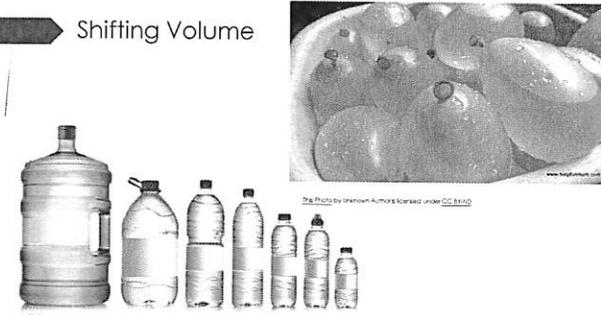
What works

I'm not
telling you
it's going
to be
easy,
I'm
telling you
it's going
to be
WORTH IT.



The slide features a decorative graphic on the left side, consisting of a dark arrow pointing right and a stylized plant stem with several thin, curved lines extending upwards and to the right.

Shifting Volume



The slide shows a row of water bottles of various sizes on the left, ranging from a large jug to a small bottle. On the right, there is a bowl of water with several floating objects, including what looks like a piece of fruit and some small containers. The text 'The Photo by Unknown Authors licensed under CC BY-ND' is visible at the bottom of the image area.

Types of Heart Failure

- Heart failure with reduced EF (HFrEF)
 - Failure in pumping
 - Volume expands
- Heart failure with preserved EF (HFpEF)
 - Failure in filling
 - Fixed volume

What does NOT work !

- Familiarity and fluency ≠ Knowledge and comprehension
 - Rereading and/or rewriting notes
- Familiarity often mistaken for understanding
 - Recall and memorization

Practical Application



Practical Application



Desirable Difficulty

- **Generative Learning**- students are given a problem to solve prior to being taught the concepts or method.

Practical Application

- **Small Groups**
 - Classroom
 - Online
 - Bedside/Exam Room
 - Simulation

Online Course

- **Pathophysiology Course**
 - Content heavy
 - Many concepts to apply
- **Effective Learning Tips**
 - Create study questions to be completed before content is available. (prompts inquiry)
 - Use low stakes testing at the completion of the content.
 - Repeat quiz questions later in the semester.
 - Student creates a summary of the discussion forum

Classroom activity

- Pharmacology course
 - Antimicrobial content
 - Very dense topic
 - Requires memorization
- Effective learning tips
 - Students work in groups to develop an antibiotic table
 - Each student selects a topic from the table and describes it to the group in their own words

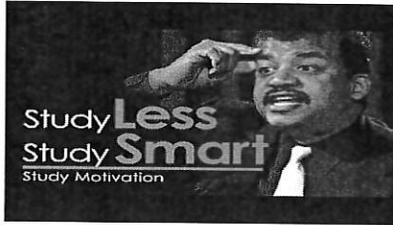
At the bedside/exam room

- Focus on one patient
 - Abnormal exam finding
 - Tachycardia
- Effective Learning Tips
 - Preceptor/Instructor probes
 - Tell me about another patient with a similar finding. (Inquiry)
 - Discuss similarities and differences across age ranges and diseases.

Simulation

- Concept from Lecture
- Safety
 - Patient
 - Medication
 - System
- Effective Learning Tips
 - "Room of Horrors"
 - Scenario includes all aspects of safety
 - Students engage in "safety practices"
 - Debrief integrates the concept of safety as a threat for all aspects of healthcare

What does effective learning look like?



Watch 0-3:33 min
<https://youtu.be/AL0BYZCYShc>

Questions

- Lisa Lewis lisa.lewis@duke.edu
- Midge Bowers margaret.bowers@duke.edu
