STRATEGIES FOR EFFECTIVE “DIDACTIC” TEACHING

Eva Aagaard, MD
Director, Academy of Medical Educators
Learning Objectives

• Describe principles of effective teaching and learning

• Compare and contrast different teaching strategies

• Practice techniques to maximize the effectiveness of your didactic teaching
Think…

• Identify a time when you had a highly valuable learning experience
  – Learned something new
  – Learned it well
  – Retained it a long time
What Themes Do You Notice?
Key Point

Effective learning involves:

• Motivation to know, learn, do
• Interactivity/engagement of learners
• Is at the right level, right time
  – Builds on or addresses your pre-existing knowledge, beliefs or understanding
• Provides a framework for thinking or doing something—a mental schema

*How People Learn: Brain, Mind, Experience and School, 2000*
What is your preferred learning method?

A. Listening to somebody explaining it.

B. Watching a demonstration.

C. Diagrams and charts - visual clues.

D. Written instructions – e.g. a manual or textbook.

E. Performing the activity
VARK Learning Styles

- **Visual**
- **Aural**
- **Read/Write**
- **Kinesthetic**

A: Percentages of physiology students who preferred a single mode of learning [i.e., unimodal; visual (V), auditory (A), reading-writing (R), or kinesthetic (K)] and those who preferred two (bimodal), three (trimodal), or four (quadmodal) modes of learning.

Key Point

- People have different preferences for how they receive new information
- Effective teaching uses multiple modalities
Which of the following skills is most important for your learners to develop?

1. Acquire information (facts, principles, concepts)

2. Learn how to use information and knowledge in new situations

3. Develop lifelong learning skills.

4. All of the Above
Faculty goals:
1. Acquiring information (facts, principles, concepts)
2. Learning how to use information and knowledge in new situations
3. Develop lifelong learning skills.

More questions:
• Which of the above goals can be accomplished outside of direct teaching time (independent learning)?
• Which of the above goals will require interaction with peers and teachers?
• Which are best taught through lecture/didactics?
Students with variable learning styles

**FACULTY GOALS**

1. Acquire information (facts, principles, concepts)
2. Learn how to use information and knowledge in new situations
3. Develop lifelong learning skills.

**TEACHING METHODS**

a. Lecture
b. Small group learning
c. Clinical (experiential)
d. Feedback
e. Project work
Key Point

• Choose a teaching method that will best meet the goals you have for your learners
The Good, The Bad, and the Ugly

DIDACTICS
What are the qualities of a bad didactic?

- Auditory
- Poor visuals
- Poor organization
- Too much information
- Complex material poorly explained
- Starts late or ends late
- Boring material
- Lackluster presentation

A didactic is a LEARNING ACTIVITY
Inherent weakness of the lecture

Listening: 5%
Reading: 10%
Lecture: 20%
Demonstrate: 30%
Discussion: 50%
Practice: 75%


Graph showing the percentage of material recorded over the length of a lecture with the equation $y = 222.15x^{-0.886}$.
Passive learning (first pass)

Poor retention

Requires supplementary study
  notes, textbooks

No problem solving

No application to new problems

Formal: Inhibits questions

Teacher cannot assess student progress

Time consuming to prepare
WHY lecture?

- High student-teacher ratio
- Transmission of information to notes
- Organize study
- Key concepts/foundation
- MCQ exam preparation
- Engage the learner
- Motivate and inspire
- Teacher continuing education
Key Point

• Traditional lecture has MANY limitations
• Change the way you think about how you are going to transmit information
  – The WAY you lecture if you have large groups
  – Using smaller groups with the same principles if you have smaller groups
Improving your teaching in BOTH small groups and formal didactics

HOW DO I DO IT WELL?
Lecture Principles

1. Focus on concepts
   • key points = 3-5
   • Summarize 3 times

2. Tell a story—provide the roadmap
   a. Beginning- get their attention, tell them why they should care
   b. Middle- tell them what they need to know
   c. End- tell them what you told them and where to go from here
Lecture Principles Continued

3. Visuals focused
   – Break things up
   – Give things to look at

4. Be interactive

5. Practice oratory- DON’T READ!!!
What does this mean practically?

EXAMPLES FROM FRIENDS
A 16–year-old male is brought to the ER for snake bite.

HPI:
--pet boa constrictor
--snake struck and did not release

PE:
Alert and oriented, VSS
Snake head attached to left cheek and left eye

To OR
Penetrating injury to globe
No leak of vitreous after removal

Should this patient receive post-bite antibiotic prophylaxis and with which antibiotic(s)?
Blastomyces dermatitidis

Mississippi and Ohio River basins

Africa

Eastern Plains (CO, WT, MT, etc.): soil, prairie dog towns
- Canine pathogen
- IC hosts

http://www.pfdb.net
Interactive lectures*

* Antidote to passive learning

- Question of the Day
- Think-pair-share
- ConcepTest
Question of the Day

A 28-year-old Indonesian male is seen for fevers, sweats and weight loss. Examination is significant for hepatosplenomegaly and diffuse lymphadenopathy. Chest radiograph shows diffuse pulmonary infiltrates.

He was diagnosed with HIV infection 3 months ago while in graduate school in Canada. At that time, CD4 count was 12, he was treated for PCP and remains on prophylactic bactrim. He has not yet started HAART. Shortly after diagnosis he immigrated to the U.S., and he is currently employed as a systems engineer.

BAL: negative PCP DFA. Routine bacterial and mycobacterial stains and cultures are negative at 5 days. Fungal culture is growing *Penicillium sp.*

Which of the following empiric treatments is indicated at this time and WHY?

A. Liposomal amphotericin B  
B. INH, RMP, EMB  
C. Intravenous Bactrim  
D. Clarithromycin, ethambutol  
E. Oral Itraconazole  
F. No treatment indicated
Think-Pair-Share

Describe the imaging studies, and develop a working hypothesis
CONCEPTTEST (ARS)

A 54-year-old male is found to have a right lower lobe nodule and malignancy is suspected. A lung wedge resection is performed. GMS stain is shown below (left).

After 3 weeks, an organism is recovered in the Mycology lab. The colony is white and fuzzy and mycelia are described as hair-like. Growth at 26 deg C is shown below (right).

Which of the following terms best describes this fungus?

A. Hyaline mould  
B. Yeast  
C. Dematiaceous mould  
D. Dimorphic fungus  
E. Zygomycete
ConcepTest

Kinesthetic Learning

Medical Equipment

Medical supplies

Models

Anatomy demos

Gross pathology
We **Started** the lesson with....
The **Topic** was....
Our **Opportunities** for practice were....
The **Purpose** of learning this is....

1. Leave 2-3 min. at end for closure
2. Ask for 2-3 min. of reflection
3. Ask students to write those thoughts down
4. Summarize (STOP)
   1. *Summarize for me*...
   2. *We started today with*... *and we learned*....
   3. *We just learned that* ...*because*.... *This will help us when*...
Key Concepts

• Learning styles are individual and varied

• Lectures and small groups can be effective learning activities

• Effective teaching:
  – Addresses different learning styles
  – Emphasizes key concepts
  – Includes interactive techniques
Questions

It's QUESTION TIME!!
Now You

• Divide into groups of 5
• Spend 5-10 minutes identifying your lecture topic
  – Non-medical
  – Something you know well
• Choose 3 key points
• Think about how to best teach those points
• Everyone gives an “on the fly talk”- 5 min or less
• Feedback from friends
What One Thing Will You Apply From This Workshop?