

Teaching and Learning

Larry Fahnstock



1

Motivation

- Why do our students want to learn steel structures and become engineers?

2



Reflection

- Think about one of your own learning experiences that was enjoyable/fulfilling/productive...
- What made it good?

3

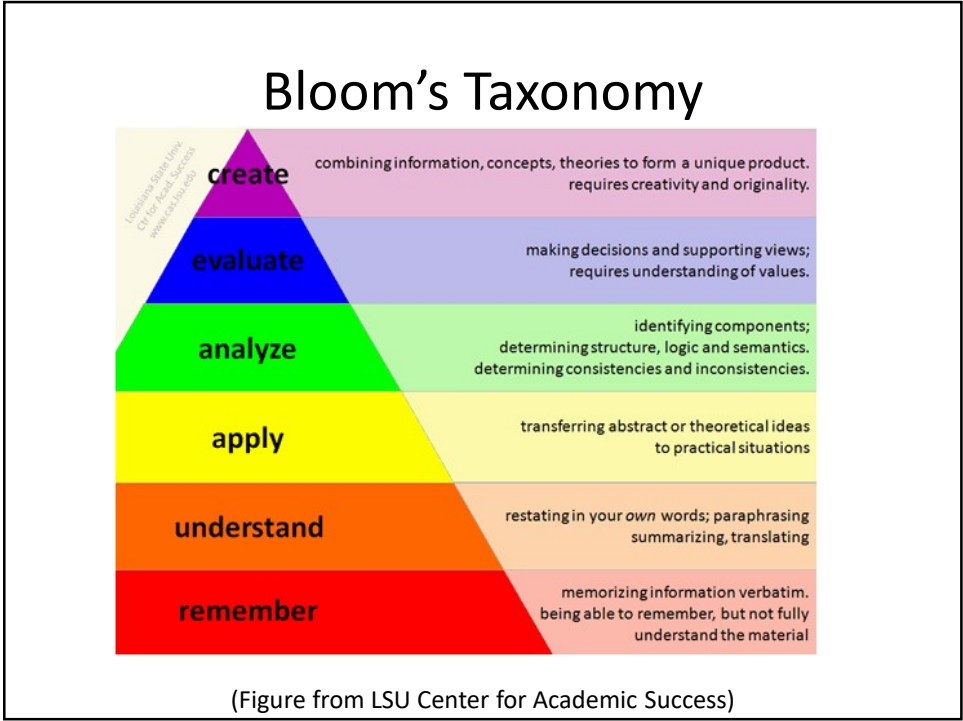
Words of Wisdom

“Learning results from what the student does and thinks and only from what the student does and thinks. The teacher can advance learning only by influencing what the student does to learn.”

Herbert Simon, the Richard King Mellon University Professor of Computer Science and Psychology at Carnegie Mellon University

4





5

Words of Wisdom

“Student engagement is the product of motivation and active learning. It is a product rather than a sum because it will not occur if either element is missing.”

Elizabeth F. Barkley, Professor of Music at
Foothill College and National Carnegie
Scholar

6



Engagement

- How can we engage our students?

7

Evidence-Based Instructional Strategies

- The testing effect
 - Long-term retention of material is increased by frequent testing with feedback.

(Jose Mestre, 2017)

8



Evidence-Based Instructional Strategies

- Distributed practice vs. massed practice (cramming)
 - Long-term retention of material improves when learning is distributed over many short sessions vs. packed into one long session.
 - For example, 4 half-hour study sessions over several days is better than 2 hours of studying in one day.

(Jose Mestre, 2017)

9

Evidence-Based Instructional Strategies

- Interleaved vs. blocked practice
 - Blocked practice – learn a topic, practice it repetitively for a period of time, then move on.
 - Interleaved practice – learn and practice multiple related topics in parallel.
- Interleaving helps students discriminate subtleties across contexts and enhances long-term retention.

(Jose Mestre, 2017)

10



Closing Comments

- Show your students that you care about them and want them to succeed.
- Create an environment that encourages interaction.
- Draw students into the learning experience – they need to own it.
- Teach the fundamentals – don't be afraid of foundational theory, even though it may be challenging.
- Listen to your students, but be careful to give them what they need, not what they think they need.
- Have fun and enjoy yourself!

11

