Incorporating Active Learning into Lectures

Medical Education Day

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“Lectures and other didactic sessions are the predominant form of teaching in the preclerkship curriculum and are used for a broad spectrum of formal content. . . Typically, lecture is the least authentic with respect to the context in which learning occurs and how learners engage with material and information.”

Teaching with Lectures

• Delivery can be boring
• Students can be passive
• Instructor can ignore student learning
• Instructor can present too much material
• Success may depend upon students’ note-taking abilities*

**Today’s Goal:** Review *specific strategies* to address these challenges by incorporating active learning activities.
Think, Pair, Share Questions

1. What is Active Learning?
2. What are challenges of incorporating active learning into lectures?
“Active learning is difficult to define, but essentially occurs when an instructor stops lecturing and students work on a question or task designed to help them understand a concept.”

Attention in the Classroom

• How long is a typical attention span?
  ○ Depends on time-of-day, motivation, enjoyment, emotion, prior knowledge

• Bunce et al., 2011.

  Study: Students in three General Chemistry courses reported attention lapses (frequency and duration).

  Key Findings:
  • Attention lapses were frequent but brief.
  • Fewer attention lapses during active-learning activities and in the lecture segments immediately after.
Research Consensus on Active Learning?

Active Learning and Student-centered Pedagogy Improve Student Attitudes and Performance in Introductory Biology

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Active Learning Not Associated with Student Learning in a Random Sample of College Biology Courses

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Range of Active Learning Activities

Simple

Moderate

Complex
Simple Active Learning Strategies

- Ask Students to:
  - Write or answer a question
  - Solve a problem
  - Create an exam question
  - Write for five minutes (e.g., “What was the most important idea of today’s lecture?” or “What was the muddiest point?”)
  - Think, pair, share

Suggested Outline for Lecture with Change-Ups
Version 1

9:10 – Welcome and review questions
9:15 – Intro lecture
9:30 – Think, Pair, Share question (with reporting and discuss)
9:45 – Lecture
10:00 – Discussion of a visual
10:15 – Lecture
10:25 – Writing activity (Most important idea/muddiest point)
Suggested Outline for Lecture with Change-Ups
Version 2

9:10 – Welcome and review questions
9:20 – Intro lecture
9:40 – Group-work: solve problem, report, discuss
10:05 – Lecture
10:25 – Writing activity (Most important idea/muddiest point)
Moderate Active Learning Strategies

- Ask Students to:
  - Role-play
  - Debate
  - Provide peer Instruction
  - Play interactive games
  - Engage in brief cooperative-learning exercises

- Others?

Example of Active Learning – Rao & DiCarlo (2001)

- **Study Aims** – Compared effects of lecture with active learning vs. traditional lecture on respiratory physiology concepts exam.

- **Key Findings** – Students who experienced active learning with lecture scored significantly higher on multiple-choice exam of RP concepts compared to students in traditional lecture section.
Complex/Comprehensive Active Learning Strategies

- Problem-based learning
- Inquiry-based collaborative group work
- Team-based learning
- Others...
Group Discussions

Working in teams of 3, develop one simple and one moderately-complex active learning activity that you could incorporate into a typical medical education lecture session.

• Choose from the activities already mentioned, or describe another activity of interest

• Identify how the active learning activities should contribute to student learning.

• Discuss potential barriers to implementation and possible solutions.
Lectures with Active Learning: The Students’ Perspective

Students mentioned that the diversity of activities helped them stay focused because the activities ‘broke up the time’ and ‘kept me alert and thinking’ by ‘involving us’.

“good balance between student involvement and teacher explanations”

“Sometimes just to talk to the person next to me, though uncomfortable at first, allowed me to lift the level of my own learning.”

Less Teaching, More Learning

For Additional Ideas and Assistance

Visit The Teaching Center Web site:

http://teachingcenter.wustl.edu

Or contact:

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Additional Resources

- Willingham, D. T. (2009). *Why don’t students like school?: A cognitive scientist answers questions about how the mind works and what it means for your classroom.* John Wiley and Sons. (Reviews findings from cognitive science related to improving teaching and learning)

- **Tips on Teaching with Lectures** (link to The Teaching Center website)

- **Confessions of a Converted Lecturer: Eric Mazur** (link to YouTube video)
Lecture - Attributed to Laurentius de Voltolina (c. 1350)

Lecture today (c. 2010)