Practicing Pedagogies: Active Teaching & Learning
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Backward design

1. Identify desired results
   - Big ideas & skills

2. Determine acceptable evidence
   - Culminating assessment task

3. Plan learning experiences & instruction
   - Learning events

Todd Zakrajsek, Associate Professor in the School of Medicine and the Department of Family Medicine, Associate Director of Fellowship Programs, and teaching consultant in the Academy of Educators at the University of North Carolina at Chapel Hill was the Keynote presenter at the Spring 2017 Teaching and Learning Symposium. His presentation was “The Flipped Classroom: A Great Teaching Approach – If You Implement It in the Right Way”

The concepts behind the Flipped Classroom are certainly not new: Team-based Learning, POGIL (Process Oriented Guided Inquiry Learning), and SCALE-UP (Student-Centered Active Learning with Upside-down Pedagogies) are just a few precursors. Have students do work in preparation of class and then during class focus on big issues and particularly challenging concepts. This idea of having students come to class prepared and then use class time for critical and reflective processing of material is the foundation of good academic learning. I LOVE that the Flipped Classroom has brought new energy to effective teaching and learning. That said I have a few recommendations.
You should be able to ...

contrast active, student-centered learning with passive, teacher-centered teaching.

apply evidence-based active learning theory and pedagogy to at least one personal instructional scenario.
Session Pre-Work


2. Read, “Where’s the Evidence that Active Learning Works?” (Michael, 2006), focusing in particular on pages 159-162 and “Conclusions,” and be prepared to share an important, intriguing, or surprising takeaway.

3. Consider an instructional scenario from your own teaching practice – a session, assignment, module, course, etc. – that you wish was more active. Be ready to work with it in light of session content.
True / False: Evidence suggests that incorporating learning technologies into classes improves student grades.

True / False: Learning facts (“what”) and learning to do something (“how”) are different processes.

True / False: Individuals are likely to learn more in groups than by themselves.
Active learning, defined

“... anything course-related that all students in a class session are called upon to do other than simply watching a lecture and taking notes” (Felder & Brent, 2009)

“... the process of keeping students mentally, and often physically, active in their learning through activities that involve them in gathering information, thinking, and problem solving” (Michael & Modell, 2003)

“... instructional activities involving students in doing things and thinking about what they are doing” (Bonwell & Eison, 1991)
ACRLog welcomes a guest post from Candice Benjes-Small, Head of Information Literacy and Outreach, and Alyssa Archer, Instruction Librarian at Radford University.

“If I have to sit through YET ANOTHER freaking ‘professional development’ session based on these cockamamie theories, I am going to pluck my eyeballs out and throw them at whatever charlatan the administration hired to conduct said session.” - professor on an online academic forum discussing learning myths, including the pyramid.

Some educational myths just can’t be killed. Case in point: the learning pyramid.

If you’re involved with student learning, you are probably familiar with the Learning Pyramid. This diagram breaks down different modes of learning and argues that more active modalities are better for long-term learning: we remember 10% of what we read, 20% of what we hear, 30% of what we see, and so on, all the way up to 90% of what we do.
• All learning involves physically changing the brain.

• Moderate stress is beneficial to learning.

• Active learning takes advantage of processes that stimulate multiple neural connections in the brain and promote memory. (More complex thought processes are more beneficial for learning because they involve more neural connections and cross-talk.)
When Students Learn (or don’t learn) from Active Learning Experiences by Bill Cerbin

Tell me and I forget. Teach me and I remember. Involve me and I learn. Benjamin Franklin

Benjamin Franklin’s aphorism makes intuitive sense; if students are more deeply involved and engaged they will learn more deeply. That sentiment is prevalent in higher education where many instructors use active learning strategies intended to involve students more deeply in the learning process. The term “active” implies that students learn by doing, whether the activity involves interactions among students, hands-on experiences, or broad approaches to learning such as problem-based or case-based learning. As these techniques proliferate, it is worth asking why some active learning experiences are better than others; why some lead to deeper learning and others simply result in action without learning.

A science education project at Vanderbilt University points to some answers. Researchers created a 6th grade science curriculum called Mission to Mars in which students grappled with authentic problems about space travel to and from Mars. At the end of the unit students did a culminating project in which they built and launched model rockets, a highly engaging, hands-on activity.

As expected they were excited about the project, and successfully built and launched their rockets. But as a learning experience the task was a flop. Students were unable to answer questions about how a rocket works or what accounts for an effective design. When asked about the purpose of the activity, students said things like, “You know, to build them and see how high they will go.” Asked about measuring how high things go, a common response was, “You know, look at it go up and see how high it goes.” Students had participated in an engaging, hands-on activity in which they learned almost nothing about science.

Disappointed with the results, the researchers redesigned the task with two goals in mind—to preserve students’ enthusiasm for the subject and to promote their understanding of scientific knowledge of rocketry. They came up with an elegant solution; students were given the job of developing design plans for a NASA rocket kit that would be used by children across the country. The assignment, called Request for Design Plans, asked students to examine various features of model rockets and then determine what materials should be included in the
I. Read about both science curricula.

II. What accounts for the difference in learning?
Abstract

With higher education shifting its emphasis from teaching to learning and inputs to outcomes, active learning techniques are gaining prominence. Research has shown that students learn better when they actively engage the course content, rather than passively absorb lecture material. However, many faculty are unsure of how to take advantage of these new techniques to improve the learning outcomes for their students. For one active learning technique, problem-based learning, librarians are well positioned to facilitate its adoption into course curriculum. In order to effect a high-quality problem-based learning experience, a true collaboration of efforts needs to take place between the subject faculty and librarian. In such a synergistic system, information skills are integrated directly into course
Your turn.