# Thriving in Academe

REFLECTIONS ON HELPING STUDENTS LEARN

Thriving in Academe is a joint project of NEA and the Professional and Organizational Development Network in Higher Education (www.podnetwork.org). For more information, contact the editor, Douglas Robertson (drobert@fiu.edu) at Florida International University or Mary Ellen Flannery (mflannery@nea.org) at NEA.

## Small Teaching: Lessons for Faculty from the Science of Learning

Small changes to your teaching, implemented tomorrow morning, can improve student learning in your courses.

**BY JAMES M. LANG,**
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In spite of all of the complaints we often hear about the quality of instruction in higher education, my work on campuses around the world has convinced me that faculty want to teach well for their students. Those of us who become locked in unproductive or stale teaching habits suffer less from a lack of vision or desire than from research pressures, overextended teaching schedules, and excessive service commitments. We simply can't find the time or intellectual headspace to consider how to engage in large-scale changes such as flipping our classrooms, or gamifying our courses, or using contract grading.

Fortunately, in recent years we have seen an increasing number of thinkers and visionaries translating the findings of the learning sciences into practical strategies for improving student learning in higher education. But the best news for busy faculty may be that a modest package of those strategies can empower us to improve our teaching in small, manageable steps. I call this approach to faculty development "small teaching," and have seen firsthand how it can help faculty enhance the quality of their course design, their everyday teaching practices, and their communication with students.

You can conceptualize entry points for small teaching by dividing up the students' classroom learning experience into four parts: the moments prior to the formal opening of class, the first few minutes of the class period, the long middle section, and those essential final minutes of class. For an immediately appreciable difference in your classes, consider an easy tweak to your routines in each of these four periods.

## Meet James M. Lang

**James M. Lang** is a professor of English and director of the Center for Teaching Excellence at Assumption College in Worcester, Mass. His most recent books include *Small Teaching: Everyday Lessons from the Science of Learning, Cheating Lessons: Learning from Academic Dishonesty,* and *On Course: A Week-by-Week Guide to Your First Semester of College Teaching.* He writes a monthly column for the *Chronicle of Higher Education.* He has given lectures or workshops on teaching at more than 75 colleges and universities in the U.S. and abroad. He edits the Teaching in Higher Education book series from West Virginia University Press, and serves on the editorial board of the journal *College Teaching.*

## Before Class Begins

Students walk into the classroom trailing the many distractions of their busy lives, from winding-down text conversations to winding-up lunch plans. One of the first challenges we face is helping them transition from the world of distraction to the focused energy of our class. Peter Newbury, director of the Center for Teaching and Learning at the University of British Columbia-Okanagan, offers an excellent model.

Prior to the start of his astronomy class, Newbury projects NASA's Astronomy Picture of the Day. He then asks students: What do you notice? What do you wonder? As students get out their materials and prepare for class, they have this small encouragement to think astronomy. But the best part about this simple pre-class activity is it provides Newbury with a opportunity for some easy student engagement at the opening of class, as he can then ask a few to share their observations and curiosity.

We need not restrict ourselves to images. In my writing class I might ask the same questions about a great sentence; a music instructor could do the same with a short composition; a marketing class, an advertisement. All it takes for us, as for our students, is keeping our eyes open to the ways in which our disciplines can spark the wonder and curiosity of our students.

## The Opening Minutes

Faculty often begin class by reviewing what happened in the last class, a good practice that helps students see continuity from one

### TALES FROM REAL LIFE > LESSONS FROM THE DIAMOND

I was watching my 10-year old daughter play softball when I noticed how some coaches instructed players to focus on the unglamorous but fundamental details of the game, such as bunting, stealing bases, or making solid defensive plays. Other coaches, by contrast, seemed to hope that their players would win the game with a dramatic home run. Although all were working with the same basic talent pool of young girls, the teams of those "small ball" coaches won a lot more games than those that were dreaming of home run heroics.

That summer I began exploring the research on the learning sciences, curious to discover whether a parallel existed in higher education. My subsequent attempts to implement a "small ball" approach to teaching in my own courses began with a more deliberate attention to the opening and closing minutes of class. What was I doing in those opening minutes to capture the attention of my students and prepare them for learning, and what was I doing in those closing minutes to hold their attention until the end and seal up the learning they had done for that day? The philosophy of small teaching, and many of the specific recommendations that stem from that philosophy, was born from those reflections.

session to the next. It also helps students in the long run by giving them a taste of what learning scientists call retrieval practice.

We have excellent evidence that if we want students to remember something—facts, concepts, or skills—they must engage in frequent efforts to retrieve that material from memory. As one psychologist put it, our memories are like overstuffed closets; we can fit plenty of things in there, but we may struggle to find and pull out what we need at the right moment. When students frequently practice retrieval, they become more adept at it. This will help them call up your course material when they need it: during your exams, for future learning in another course, or in their careers.

Instead of opening class by reviewing your previous meeting, ask students to help "remind" you of what you covered last time. Use questions that move beyond simple recall into reflection and evaluation: What was the most important topic we covered in the last class? Last week we talked about Concept X; can anyone remember some of the examples we used to help illustrate that concept?

You might consider using the syllabus for exercises like these. Ask students to have their syllabus in class every day, and occasionally begin class by having them pull it out and brainstorm whatever they can remember about some previous class period. But remember—for this technique to work, they have to practice retrieving from their minds, not their notebooks.

## Mid-Class Connections

One way of understanding knowledge is as the network of connections between all of the things we have learned and remember. Researchers tell us that experts in a discipline have rich webs of connections between all of the facts, concepts and skills of their discipline, whereas novice learners (like our students) tend to have thin or nonexistent networks. As you walk through the world, you continually see ways in which your experiences connect to your field of study. Students don't think that way. They tend to learn course material in isolated units, separate from their lives outside of the classroom. Good teaching helps students develop richer knowledge networks.

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Unfortunately, we can't simply hand fully-formed mental networks to our students; deep, long-term learning happens when students make the connections themselves. One strategy to help them do this is the connection notebook, which is designed to help students brainstorm connections between that day's class material and the world around them. My students keep a dedicated connection notebook, which I collect and review three times per semester, but you might prefer to have them complete connection prompts in their regular notebooks, or post them online, or share them in small groups. Whatever option you prefer, put connection notebooks into practice by pausing once per class or per week and asking students to respond to prompts like these:

- Describe one way in which today's course content manifests itself on campus or in their home lives.
- Identify a TV show, film, or book that illustrates a course concept from class.
- Describe how today's material connects to last week's.
- Explain how that day's material connects to something they learned in another course.

Ask a few students to share their answers. You'll be astonished, as I have been, at the creative and intriguing ways in which they see connections to the world, or across the different units of the semester. And with those connections, they'll be inching closer to the kind of expert knowledge structures we want them to obtain.

## BEST PRACTICES > CREATING YOUR OWN SMALL TEACHING

Part of the joy of small teaching stems from the opportunity and encouragement it gives you to invent your own small ways to improve student learning. These four principles can provide guidance for thinking about your own small teaching techniques.

Retrieving: Students who engage in frequent retrieval practice have better long-term retention of course material. How can you give students frequent opportunities to retrieve material and put it to use?

Predicting: Learners who make predictions, or tackle problems before they are ready, open themselves up to deeper learning. Can you ask your students to try their hand at your material before you teach it to them?

Spacing: Small, repeated exposures to new material leads to better learning than long, intensive exposure. How can you provide small bites at the skills students are building, weeks and months after first exposure?

Connecting: What will enable your students to see connections between the course material and the world around them, or between the material from the first and last weeks of the semester?

See *Small Teaching: Everyday Lessons from the Science of Learning* for more.

## The Final Minutes

The final minutes of class can represent one of the great wasted opportunities for learning. As the minute hand ticks, students begin packing their bags and mentally checking out of class; meanwhile, faculty rush frantically to squeeze in one or two last points before students exit. A closing ritual that requires student engagement can help ensure that learning continues through the end of the class period and beyond.

The best way I know of to make the closing minutes count is The Minute Paper, a classic technique articulated by Angelo and Cross in their book *Classroom Assessment Techniques.* The Minute Paper involves asking students to write answers to two questions: What was the most important thing you learned today? What question remains in your mind? These simple questions pack a lot of cognitive punch. They engage students in quick retrieval practice; they invite reflection and evaluation (the students must decide what was most important); they encourage students to see the day's material as a starting point for a new journey, as opposed to the final resting place of a completed one.

## ISSUES TO CONSIDER

### PRACTICAL CONCERNS

**Why do we need our students to remember facts or concepts? They have a world of information at their fingertips. I want my students to become better thinkers, not memorizers.** All faculty want their students to become critical and creative thinkers, and master complex intellectual skills. But to master these cognitive tasks, students need foundational knowledge. Thinking requires (at least) two major inputs: what we take in from the environment (or Google) and what we already have in our minds. When either of those inputs is shallow, thinking will be shallow. As Daniel Willingham and other cognitive theorists have pointed out, students who have mastered basic math facts perform better on higher order math problems than those who have not. Critical and creative thought builds on concepts and ideas; those concepts and ideas build on facts. A student who has mastered her own unique set of facts and ideas about the French Revolution will create a better, more interesting, and more original essay than one who churns out a summary of what she found on Google.

**Can a small teaching approach help me with those higher order cognitive skills?** Absolutely. Consider the principle of connections. What we describe as "creative thinking" often consists of combining old ideas in striking or original new ways. So if we want to help students develop their creative skills, we can demystify that process by offering them opportunities to connect their ideas in new ways and see what emerges. In my classes we play a game called "the minute thesis," in which I write categories of concepts or authors or themes from the class on the board, and then ask a student to randomly draw a line connecting one item from each of the categories. We all then take a minute to come up with a "thesis" that connects those different items. After a minute of silence and then discussion, we do it again. Over the course of a class period, we can brainstorm many new ways to connect and understand the course material, and give students a creative strategy to begin developing their own original ideas.


**"DON'T WAIT UNTIL NEXT SEMESTER** TO MAKE TEACHING TWEAKS; START TOMORROW MORNING."

When I speak to faculty about The Minute Paper, they ask me all kinds of questions about its implementation: Should I collect them? Should I grade them? Should we do it every day or weekly? My answer: make it your own. Experiment and see what works best for you and your students.

These four strategies can give you an excellent start on small teaching. But you don't need to follow these prescriptions to become an effective small teacher. Consult some of the books in the "Additional Resources" section and see if you can identify small ways to put into practice principles from the growing body of research on human learning. Don't wait until next semester to make teaching tweaks; start tomorrow morning. As you find new ideas that work for you, and they become enfolded into your routines, try others.

Small teaching steps forward, taken and renewed each semester, can lead you down the pathway to a long and satisfying faculty career.

### REFERENCES AND RESOURCES


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**Three great websites for small teaching activities:**

http://ablconnect.harvard.edu

http://retrievalpractice.org

http://facultyfocus.com