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Apprenticeship in learning design for literature courses

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Abstract
This essay explains how research in Physics education by Eric Mazur, arguing from the pedagogic deficiencies of instruction through lectures, has been applied successfully in a thorough revision of two undergraduate courses in English, one on John Milton and another on William Shakespeare.

Keywords
English, Mazur, Milton, pedgogy, Shakespeare, student-centered

> The danger with lucid lectures . . . is that they create the illusion of teaching for teachers and the illusion of learning for learners.

—Eric Mazur, Balkanski Professor of Physics, Harvard University and first winner of the Minerva Prize for Advancements in Higher Education

A teaching tip from Socrates

At the beginning of his famous dialogue, the *Symposium*, Plato tells of Socrates late arrival to a dinner party at Agathon's house, the imagined site of the famous discourses on love that make up this famous dialogue. Agathon supposes that Socrates arrived late for dinner because he was caught up, as he walked, in one

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of his signature meditations on some great idea. The story continues when Socrates finally walks through Agathon's door:

Symposium

> As he came in, Agathon, who was sitting by himself at the far end of the table, called out, "Here you are Socrates. Come and sit next to me; I want to share this great thought that's just struck you in the porch next door. I'm sure you must have mastered it, or you'd still be standing there."
>
> "My dear Agathon," Socrates replied as he took his seat beside him, "I only wish that wisdom *were* the kind of thing one could share by sitting next to someone—if it flowed, for instance, from the one that was full to the one that was empty, like water in two cups finding its level through a piece of worsted." (175c-d, quotation marks added)

Socrates describes an extreme version of what Eric Mazur calls the "transfer of information" theory of learning (Lambert, 2012). Students who sit in a lecture hall checking e-mail or browsing Facebook appear to subscribe to this model of learning, as if attendance alone, physical proximity, were sufficient for a *transmission* of wisdom. Those who both attend and actually *listen* place their faith in a less extreme version of this transfer theory, believing that what took the professor hours or even weeks to work out in her own mind can be aurally *poured* into their brains. Socrates missed dinner because he was thinking so hard about something; Agathon thinks that he can benefit from Socrates's efforts without similar effort of his own. We know from experience and research that the person who actually experiences deep, long-lasting learning from a lecture is the lecturer, not the audience. Learning is always active, and responsibility for it must be *owned* by the learner, otherwise the teacher labors under the illusion of teaching and the student under the illusion of learning.

Socrates knows better, and so should we. After a series of lectures on love delivered by Agathon and his guests (Aristophane's lecture is more of a hilarious story than a lecture), Socrates addresses the group, not with a lecture, but with questions—he prompts a dialogue. Then he tells how he learned whatever he knows about love from a dialogue he had with someone else. He does not lecture; he does not pretend that wisdom is his own property; he does not mask the process by which he acquired it in dialogue with others. Most of all he does not believe or imply that his wisdom can be simply *transferred* to anyone else. They must listen, question, and arrive at conviction by a process of discovery, literally by changing their minds. Socrates can provoke and guide, but he cannot deliver. Neither can we.

Eric Mazur: Evidence-based Socratic practice

Twenty-five years ago, Eric Mazur was a newly tenured professor of physics with a reputation as one of Harvard's most popular lecturers. He was proud

of the stellar student evaluations that he consistently received for his clear, polished lectures in an introductory physics course. Then one day, he came across an article by David Hestenes (1987) in the *American Journal of Physics*, an article that changed forever Mazur's approach to teaching and launched his second career researching effective methods of teaching and learning. Hestenes had devised a simple test of students' understanding of the most fundamental concepts in physics, called the "Force Concept Inventory." Unlike the kinds of assessments Mazur and most physics teachers had been using for decades (quizzes, problem sets, tests that asked students to apply memorized formulae to new problems), the FCI, wrote Hestenes "is not 'just another physics test.' It assesses a student's overall grasp of the Newtonian concept of force. Without this concept the rest of mechanics is useless, if not meaningless" (Hestenes et al., 1992: p. 13).

Most students' commonsense beliefs about how force works in the physical world are directly at odds with Newtonian concepts. Newton's theories of force are therefore counter-intuitive. In fact, most of our intuitions about how the physical world behaves resemble Aristotle's accounts from ancient times. Newtonian physics, especially his concepts of force, directly challenged Aristotelian beliefs and helped to found what today we know as modern science. A simple example of this incompatibility between our commonsense notions and Newtonian concepts was demonstrated by Galileo in 1590. Aristotle had taught that the speed of a body falling to earth is directly proportional to its weight. Galileo dropped several balls of various weights, but similar shape and size, from the bell-tower in Pisa; contrary to what everyone believed (and many still believe today) the balls, released simultaneously, also hit the ground simultaneously.

Using an ordinary, non-technical, vocabulary, Hestene's FCI was used to measure how effective various types of physics instruction are at changing students' commonsense beliefs about force. He discovered that even students who had performed very well in physics courses at the University of Arizona and nearby high schools persisted in their commonsense beliefs about force, especially with regard to Newton's third law: for every action, there is an equal and opposite reaction. When a bus and a fly collide, this law holds, both exert an equal force on each other in opposite directions.

Mazur gave this simple test, the FCI, to his own students, students who had earned As in Physics 11 at Harvard, confident that his students really had learned to change their beliefs about the world. He was stunned to discover that two thirds of his students were "modern day Aristotelians." One of his best students, in fact, asked him as the not-for-credit test began, "How should I answer these questions—according to what *you* taught me, or how I usually think about these things?" (*Lambert*, 2012). From that time forward, Mazur has abandoned lectures and has developed an impressive set of active-learning practices that really change peoples' minds, and he has been testing and evaluating these methods for over 20 years.

Before I outline his pedagogical innovations and explain how I have adapted their underlying principles for designing undergraduate courses in Milton and Shakespeare, permit me one more amusing, but telling, anecdote. I quote from a recent story in *Harvard Magazine* (2012):

> When Mazur speaks to audiences on pedagogy, he asks his listeners to think about something they are really good at—perhaps some skill they are proud of, especially one that advanced their career. "Now, think of *how* you became good at it," he says next. Audience members, supplied with wireless clickers, can choose from several alternatives: trial and error, apprenticeship, lectures, family and friends, practicing. Data from thousands of subjects make "two things stand out," Mazur says. "The first is that there is a huge spike at *practicing*—around 60 percent of the people select 'practicing.'" The other thing is that for many audiences, which often number in the hundreds, "there is absolutely *zero* percent for lectures. Nobody cites lectures." (Lambert, 2012)

From Mazur to Milton and Shakespeare

Mazur's new practices rely on very old principles. Allow me to list them and say a few things about their underlying principles.

Peer instruction (Mazur, 1997; Crouch and Mazur, 2001)

Instead of presenting new concepts first by lecture, Mazur prepares a demonstration, and before running it, he asks students to commit, by way of a handheld device, to an answer about the outcome. Then he invites students with different answers to talk to each other for about three minutes and polls them again. By this point, most have the correct answer; then, he runs the demo as confirmation. The principle operating here is asking students to be teachers because teachers learn more from instruction than students, and because they understand better the novice mind.

Just-in-time teaching or flipping the classroom (Simkins and Maier, 2009; Basak, 2014)

Mazur asks students to confront new material *before* coming to class, then bring their questions to class (or post them online overnight) where he uses peer instruction to address them. The principle here is student-centered learning design; find out where their problems and concerns lie and design classroom activities to address them (Novak and Christian, 1999).

Flipping the classroom is not really new to traditional English classes; for as long as I've been in school, students have done the assigned reading before class and then come to class for a lecture and/or discussion on the reading. But I have brought learner-centered design practice to bear by adding a new wrinkle: I require

that students respond, in writing, to two prompts about the reading and post those responses on the course website by 2 am before class meets later that day. These are the prompts:

- What passage(s) (not more than 2, please) give(s) you the most trouble and why? This may be a matter of understanding, interpretation, or emotional reaction. *Quote the passage with proper citation* and then post your response.
- What one passage do you think you have some special insight into? *Quote the passage with proper citation* and then post your response.

Because the students perform this ritual whenever new reading is assigned, they get lots of practice (twice every week) in two of the rudiments of close-reading—quoting (citing) and discussing the quotation, but in this case, they do it by identifying the places that resist transparent reading and simple interpretation. These, of course, are usually the most important parts of the text.

When I rise at 5:30 am, all the responses await me on Canvas (our Learning Management System). I make some coffee and start browsing through them, grouping them by themes, types of problems and passages quoted. I keep a list of instances of idiosyncratic misreadings that I can deal with individually by e-comments, or, if helpful, address in class. But mostly, I use the grouped comments to plan the class activities for the day's meeting at 8:45. For a class with 40 enrolled students, this process takes me about 60 minutes, rarely more. (With each annual iteration, the process takes even less time, because some groups of concerns become predictable, and, of course, if your class meets later in the day, you need not rise at 5:30!) I might cue up a scene or two from a video performance, structure a debate, compose a short (10-minute) lecture, find some useful sources online (Bible passages, bits from Virgil or Plato, even YouTube clips) that will help deepen students' engagement with the poem or play. Since all the students have posted responses to the reading, they all have something to say, or even better, questions to ask. That means that ''cold-calling'' in class becomes ''warm-calling.'' Sometimes I print out a few postings, hand them to individuals as they show up, and ask them to start a conversation by reading them to the class. Everything that happens in class, whether in small groups or all together, responds (not always directly) to the concerns they raised in their posted responses.

I also help students learn by providing opportunities for them to teach each other—peer instruction—but as before, my adaptation differs from Mazur's clicker-response followed by a three-minute debate. I dedicate an entire class meeting to training students in an effective method for commenting on their classmates' written work. Every student does every essay assignment twice, submitting the first draft to two classmates for peer review, and the final draft to me. For a week in between they receive feedback from two classmates, give those two feedback on their work, and respond in writing to the feedback they receive. For this, I teach them a method for peer review, invented by my colleague Karen Gocsik, called

"What? Where? Why?" When reviewing a classmate's written work, they are instructed to pay attention to their emotional reactions to the work, and identify What passage prompted that response, say Where the passage is (cite it), and explain Why they think they had that emotional reaction. Here's a sample response to a draft essay on *The Rape of Lucrece*:

> I'm confused [*What*] by your conclusion regarding Jacobson's argument concerning Lucrece's "ubiquitous absence, a legible secret, and a defiantly productive O." The paragraph after the list of definitions [*Where*] (Graff, 2003) seems fairly vague, and [*Why*] I'd like to know what your points are in the end that make Jacobson's points more pertinent. What do you mean when you say she isn't as "productive or defiant" as Jacobson concludes, particularly defiant? Productive in the sense that she takes on many definitions of cipher, but how is she defiant? Also, could you clarify the term "early modern cipher"? Does this imply that this word has taken on different usages over time?

When the author responds, in writing, to this review, she actually begins the process of genuine re-writing, re-writing and re-thinking in response to an actual reader, an audience *besides* the professor, a peer who shares her beginner's mind, what my karate sensei used to call, *sho-shin*. Learning by teaching and teaching as a learner—extremely effective in literary study.

Learning by doing research: Students as apprentice scholars

This teaching practice is not only *informed* by research, especially research in physics pedagogy, it invites students into the *practice* of authentic research. I design the course, as much as possible, as an apprenticeship in literary research and scholarship. One specified outcome of the course is that students will complete an eight-to-nine page essay that would be acceptable at an annual conference in Medieval and Renaissance literature and history held at a nearby university. Here's the assignment:

> This essay represents your chance to *contribute* to the already published discussion in the form of a conference paper that can be read aloud in 20 minutes, or 8 1/2 pages double-spaced. *The best essays will be submitted for presentation at an actual professional conference in April 2015*. Your critical essay should respond to one or more recent critical arguments about the play you have selected. The following modes of response come from Gerald Graff's recent book, *Clueless in Academe: How Schooling Obscures the Life of the Mind* (New Haven: Yale UP, 2003), 171:
>
> - *disagree* with some key statement;
> - *agree* with something the critic says and then say more about it than he or she did;

- point to something the critic says that seems *to go contrary* to something else he or she says;
- point to something the critic says and give a *counter example* from the text;
- argue with the critic by showing that he or she is *leaving out* some key aspect of the story or some key issue or argument;
- blow your critic out of the water by showing that he or she is *totally wrong*;
- praise your critic for making an extremely important point, and *add something* important to that point.

My students succeed at this assignment in stages. First, they commit to a very broad topic or play or poem (or, in the case of *Paradise Lost*, a piece of the poem) on the *second* day of class meetings. That will be their chosen field of developing expertise for the term, and it really focuses their attention. No matter what we read and discuss as a group, each individual is always thinking about how it may be useful to understanding his own project.

Next, they learn how to search various bibliographical indexes, especially the Modern Language Association Bibliography, to get access to the ''gated community'' of published scholarship and begin to understand where scholarly conversation lives, and how it works. Their ultimate goal is to join one of those conversations, but first they need a lot of practice and help. They need to try and fail, and get feedback from an expert librarian (who is part of my course design team) and try again. Because they begin early in the term (Week 2), they learn fast and well.

Then, they practice talking about the scholarship they've found and read. Hopefully, they discover how to put various scholars into conversation with each other by producing a Criticism Review of four articles or book chapters. As with the final essay, they do this twice, receiving peer feedback, before composing and submitting the final draft. To date, 13 students from two iterations of my Milton class have submitted their essays to a professional conference at a university nearby. All of the submissions were accepted by the organizers and all of the students delivered the papers to a very appreciative national and international gathering. From my Shakespeare class in 2014, 11 students submitted essays and delivered them in April 2015.

Mazur changed his course design because he discovered that even his A students had not really changed their minds about how force works in the physical world. They learned to apply formulas as directed, but still lived in a pre-Copernican universe. My motivation is only slightly different. Students used to write their papers with only one audience member in mind—me, the teacher. That means they very often wrote what they thought I wanted to hear, just as Mazur's students answered test questions, not according to how they usually think, but according to the formulas they memorized from lectures. In the old pedagogy, I used for 20 years, my students spent most of their intellectual energy trying to scope out ''what

the teacher wants," rather than finding their own voice in an ongoing scholarly conversation. Now my students write for each other, but even more important, they write for an audience of professional scholars whose work they have learned to find, understand, and evaluate. Finally, they create a new thread in the scholarly conversation. As apprentice scholars, evaluating the work of others and creatively joining the conversation, they are working in what Benjamin Bloom (and his revisers) (Anderson and Krathwohl, 2001) regarded as the highest modes of human learning—evaluating and creating. They have not just learned what the teacher thinks, but what they think, and how they got there.

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References

Anderson LW and Krathwohl D (2001) *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.

Basak S (2014) Harvard's Eric Mazur wins $500,00 award on teaching theory. *Bloomberg News*, May 20. Available at: http://www.bloomberg.com/news/2014-05-20/harvard-s-mazur-wins-500-000-award-for-global-teaching-theory.html .

Crouch C and Mazur E (2001) Peer instruction: Ten years of experience and results. *American Journal of Physics* 69: 970.

Graff G (2003) *Clueless in Academe: How Schooling Obscures the Life of the Mind*. New Haven, CT: Yale University Press.

Hestenes D (1987) Toward a modeling theory of physics instruction. *American Journal of Physics* 55: 440–454.

Hestenes D, Wells M and Swackhamer G (1992) Force concept inventory. *The Physics Teacher* 30: 141–158.

Lambert C (2012) Twilight of the lecture. *Harvard Magazine*, March–April. Available at: http://harvardmagazine.com/2012/03/twilight-of-the-lecture

Mazur E (1997) *Peer Instruction: A User's Manual*. Upper Saddle River, NJ: Prentice-Hall.

Novak G, Gavin A, Christian W, et al. (1999) *Just-in-Time Teaching: Blending Active Learning with Web Technology*. Boston, MA: Addison Wesley.

Plato (1961) Symposium (trans M Joyce). In: Hamilton E and Cairns H (eds) *The Collected Dialogues of Plato*. New York: Pantheon Books, p. 526.

Simkins S and Maier M (eds) (2009) *Just-in-Time Teaching: Across the Disciplines and Across the Academy (New Pedagogies and Practices for Teaching in Higher Education)*. Sterling, VA: Stylus Publishing.

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