

Learner-Centered Teaching: Five Key Changes to Practice

By Maryellen Weimer

Thesis: In order for teaching to more effectively promote learning, instructional practice needs to change in five areas.

1. The Role of the Teacher

Currently: Most instructional practice still features teacher action.

The Change: Instructional action should focus on students learning

Examples: approaches that overcome the propensity to tell – not “going over” the syllabus, how-to study advice

Implications: Facilitative roles are more difficult and no less central in student learning experiences

2. The Balance of Power

Currently: Faculty make the key decisions about learning for students.

The Change: In ethically responsible ways, faculty share decision-making about learning with students.

Examples: assignment choices and policy setting

Implication: Teachers control less, but students are involved more.

3. The Function of Content

Currently: Faculty cover content with the goal of building strong knowledge foundations.

The Change: Content should be used to build a knowledge base and to develop learning skills and learner self-awareness.

Examples: approaches that do not separate learning strategies from content – end of class summaries, exam review sessions

Implication: Teachers cover less, but students learn more.

4. The Responsibility for Learning

Currently: Faculty “force” learning on reluctant participants.

The Change: With students, faculty create learning environments that motivate students to accept responsibility for learning.

Examples: activities to create constructive classroom climates and let there be logical consequences

Implication: As students grow more autonomous, they need teachers less

5. The Processes and Purposes of Evaluation

Currently: Evaluation activities are grade-oriented and completed exclusively by teachers.

The Change: Evaluation activities should also be used to promote learning and to develop self- and peer assessment skills.

Examples: ways to use self- and peer assessment - participation

Implication: Accurate self- and peer assessment results in fewer arguments over grades

Content from: *Learner-Centered Teaching: Five Key Changes to Practice* available online: www.josseybass.com

RESOURCES ON LEARNER-CENTERED TEACHING

Published Since 2002

Compiled by Maryellen Weimer, Ph.D. grg@psu.edu Blogs at www.facultyfocus.com

The Role of the Teacher

- Cooper, M. M., Cox, C. T., Nammouz, M. and Case, E. "An Assessment of Collaborative Groups on Students' Problem-Solving Strategies and Abilities." *Journal of Chemical Education*, 2008, 85 (6), 866-872
--found that most students' problem-solving strategies and abilities can be improved by working in short-term collaborative groups
- Deslauriers, L., Schelew, E., and Wieman, C. "Improved Learning in a Large-Enrollment Physics Class." *Science Magazine*, 2011, 332, 862-864.
--an experimental section using a variety of learner-centered approaches had better attendance, higher engagement and more than twice the learning than in the control section where the teacher lectured
- Hockings, S. C., DeAngelis, K. J., and Frey, R. F. "Peer-Led Team Learning in General Chemistry: Implementation and Evaluation." *Journal of Chemical Education*, 2008, 85 (7), 990-996.
--students participating in weekly peer-led study groups out performed students not in study groups on three out of four measures of academic performance
- McCreary, C. L., Golde, M. F., and Koeske, R. "Peer Instruction in General Chemistry Laboratory: Assessment of Student Learning." *Journal of Chemical Education*, 2006, 83 (5), 804-810.
--participation in undergraduate peers led lab sessions enhanced learning for students as compared with students in conventional labs taught by teachers
- Silverthorn, D. U. "Teaching and Learning in the Interactive Classroom." *Advances in Physiology Education*, 2006, 30, 135-140.
--uses a system that holds students responsible for learning some content on their own
- Thiel, T., Peterman, S., and Brown, B. "Addressing the Crisis in College Mathematics: Designing Courses for Student Success." *Change*, 2008, July-August, 44-49.
--redesigned a developmental algebra course with fewer lectures and more lab time with individual instruction. Student success in the course went from 55% to 75% with no decrease in course rigor.
- Ueckert, C., Adams, A., and Lock, J. "Redesigning a Large-Enrollment Introductory Biology Course." *Cell Biology Education—Life Sciences Education*, 2011, 10 (Summer), 164-174.
--a major course redesign undertaken by a team of faculty resulted in a course where more students succeeded (measured by higher grades and fewer dropouts) and were more satisfied with this course which was offered in multiple sections

The Balance of Power

- DiClementi, J. D. and Handelsman, M. M. "Empowering Students: Class-Generated Rules." *Teaching of Psychology*, 2005, 32 (1), 18-21
--gave students a set of categories (late arrival, sleeping in class, use of cell phones) and let them develop classroom policies
- Gibson, L. "Self-directed Learning: An Exercise in Student Engagement." *College Teaching*, 2011 59 (3), 95-101.
--let student design the course syllabus by providing them with 50 possible course objectives and 22 potential assignments, and by stipulating the course design had to fit the course description
- Hudd, S. S. "Syllabus Under Construction: Involving Students in the Creation of Class Assignments." *Teaching Sociology*, 2003, 31 (2), 195-202.

--gives students a syllabus the only contains topical headings and charges them with constructing a list of graded assignments.

Litz, R. A. "Red Light, Green Light and Other Ideas for Class Participation-Intensive Courses: Method and Implications for Business Ethics Education." *Teaching Business Ethics*, 2003, 7 (4), 365-378.

--lets students have some control over how they will participate in class

Benjamin, L. T.. "Setting Course Goals: Privileges and Responsibilities in a World of Ideas." *Teaching of Psychology*, 2005, 32 (3), 146-149

--sees a possible role for students in setting course goals or in sharing goals with the instructor

Singham, M. . "Moving Away from the Authoritarian Classroom." *Change*, May/June 2005, pp. 51-57.

--finds the authoritarian language and structure of syllabi symptomatic of the breakdown of trust between teachers and students; describes his experience with a redesigned syllabus in a large physics course

Singham, M. "Death to the Syllabus." *Liberal Education*, 2007, 93 (4), 52-56.

--further analysis of the role of syllabi in preventing and promoting learning

The Function of Content

Armbruster, P., Patel, M., Johnson, E. and Weiss, M. "Active Learning and Student-centered Pedagogy Improve Student Attitudes and Performance in Introductory Biology." *Cell Biology Education—Life Sciences Education*, 2009, 8 (Fall), 203-213.

--restructuring this large biology course "led to significant improvement of self-reported student engagement and satisfaction and increased academic performance." (p. 203)

Bacon, D. R., and Stewart, K. A. "How Fast Do Students Forget What They Learned in Consumer Behavior? A Longitudinal Study." *Journal of Marketing Education*, 2006, 28, 181-192.

--using a robust empirical design documents that most of the knowledge gained in a course for majors is lost within two years

Brown, P. J. P. "Process-Oriented Guided-Inquiry Learning [POGIL] in an Introductory Anatomy and Physiology Course with a Diverse Student Population." *Advances in Physiology Education*, 2010, 34, 150-155.

--50% of the lectures were replaced with POGIL activities, performed in class by students working collaboratively in small groups. Overall course scores increased from means of 76% to 89%.

Burrowes, P. A. "A Student-Centered Approach to Teaching General Biology that Really Works." *The American Biology Teacher*, 2003, 65 (7), 491-502.

--100-student sections achieved better grades on standard midterms, developed higher level thinking skills and had more positive attitudes toward the course

Gregory, M., "Turning Water into Wine: Giving Remote Texts Full Flavor for the Audience of Friends." *College Teaching*, 2005, 53(3), 95-98.

--a wonderfully written piece exploring how teachers and students don't connect to content the same way

Lewis, S. E., and Lewis, J. E. "Departing from Lectures: An Evaluation of a Peer-Led Guided Inquiry Alternative." *Journal of Chemical Education*, 2005, 82 (1), 135-139.

--substituted one lecture per week with a guide-inquiry discussion and found covering less content did not result in less learning

The Responsibility for Learning

Coffman, S. J. "Ten Strategies for Getting Students to Take Responsibility for Their Learning." *College Teaching*, 2003, 51 (1), 2-4

--great list of ten specific ways teachers can encourage students to step up to the plate

Howard, J. R. Just in Time Teaching in Sociology or How I Convinced my Students to Actually Read the Assignment. *Teaching Sociology*, 2004, 32, 385-90.
--after a telling assessment revealing just how few students were actually doing the reading, devised an interesting assignment which did as the title claims

Roberts, J. C., and Roberts, K. A. "Deep Reading, Cost/Benefit, and the Construction of Meaning: Enhancing Reading Comprehension and Deep Learning in Sociology Courses." *Teaching Sociology*, 2008, 36, 125-140.
--insightful analysis of student reading skills and how they can be developed. Objects to quizzes and proposes an assignment that helps develop college level reading skills.

Tomasek, T. "Critical Reading: Using Reading Prompts to Promote Active Engagement with Text." *International Journal of Teaching and Learning in Higher Education*, 2009, 21 (1), 127-132.
--get example of an assignment design that gets students doing the reading at the same time it develops college-level reading skills

Yamane, D. "Course Preparation Assignments: A Strategy for Creating Discussion-Based Courses." *Teaching Sociology*, 2006, 34 (July), 236-248.
--describes an assignment that gets students doing the reading before they come to class and participating in discussion during class

The Processes and Purposes of Evaluation

Baker, D. F. "Peer Assessment in Small Groups: A Comparison of Methods." *Journal of Management Education*, 2008, 32 (2), 183-209.
--uses a comprehensive lit review to generate the most common assessment criteria for peers; also includes two excellent peer assessment forms, plus much other useful information

Deeter, L. "Incorporating Student Centered Learning Techniques into an Introductory Plant Identification Course." *NACTA Journal*, 2003, (June), 47-52.
--some especially creative assessment techniques that respond constructively to exam anxiety

Edwards, N. M. "Student Self-Grading in Social Statistics." *College Teaching*, 2007, 55 (2), 72-76.
--a unique system lets students grade homework and exams at the same time it keeps them honest

Hiller, T. H., and Hietapelto, A. B. "Contract Grading: Encouraging Commitment to the Learning Process Through Voice in the Evaluation Process." *Journal of Management Education*, 2001, 25 (6), 660-684.
--tracks the evolution of a contract grading scheme across a four-year period with 473 students in 22 classes and at three different universities

Krohn, K. R., Foster, L. N., McCleary, D. F., Aspiranti, K. B., Nalls, M. L., Quillivan, C. C., Taylor, C. M., and Williams, R. L. "Reliability of Students' Self-Recorded Participation in Class Discussion." *Teaching of Psychology*, 2011, 38 (1), 43-45
--empirically investigated a method of having students record and describe their discussion contributions which showed that student did not over-reported their participation

Nilson, L. B. "Improving Student Peer Feedback." *College Teaching*, 2003, 51 (1), 34-38.
--great collection of prompts that improve the quality of feedback students provide each other on papers, projects and presentations

Implementation Issues

Albers, C. "Teaching: From Disappointment to Ecstasy." *Teaching Sociology*, 2009, 37 (July), 269-282.
--honors students resisted approaches that required them to be more self-directed

- Blumberg, P. *Developing Learner-Centered Teaching: A Practical Guide for Faculty*. San Francisco: Jossey-Bass, 2009.
--close to a workbook, this resource proposes a practical system for implementing incremental changes that make courses more learner-centered.
- Doyle, T. *Helping Student Learn in a Learner-Centered Environment*. Sterling, VA: Stylus, 2008.
--very good on responding to student resistance
- Noel, T. W. "Lessons from the Learning Classroom." *Journal of Management Education*, 2004, 28 (2), 188-206.
--recounts first attempts to implement learner-centered approaches and explores why they failed
- Prince, M., and Felder, R. "The Many Faces of Inductive Teaching and Learning." *Journal of College Science Teaching*, 2007, 36 (5), 14-20.
--illustrates how inductive methods (like inquiry- and problem-based approaches, among others) have been implemented in the sciences and identifies many helpful resources
- Spence, L. D. "The Case Against Teaching." *Change*, 2001, 33 (6), 11-19.
--a kick-in-the-butt piece if something is needed to motivate change in the direction of learner-centered teaching
- Whetten, D. A. "Principles of Effective Course Design: What I Wish I had Known about Learner-Centered Teaching 30 Years Ago." *Journal of Management Education*, 2007, 31 (3), 339-357.
--great advice on implementing learner-centered approaches starting with how the course is designed

Good Summaries of Research and Resources on Learner-Centered Approaches

- Eberlein, T., Kampmeier, J., Minderhout, V., Moog, R. S., Platt, T., Varma-Nelson, P., and White, H. B. "Pedagogies of Engagement in Science." *Biochemistry and Molecular Biology Education*, 2008, 36 (4), 262-273.
--clear descriptions of three group learning models; problem based learning, process-oriented guided inquiry and peer-led team learning. References relevant research and resources.
- Halpern, D. F, and Hakel, M. D. "Applying the Science of Learning to the University and Beyond: Teaching for Long-Term Retention and Transfer." *Change*, July/August 2008, 36-41.
--identifies 10 research-based learning principles that enhance long-term retention and transfer
- Michael, J. "Where's the Evidence that Active Learning Works?" *Advances in Physiology Education*, 2006, 30, 159-167.
--an excellent review of the research with special emphasis on evidence supporting active learning in the sciences
- Prince, M. "Does Active Learning Work? A Review of the Research." *Journal of Engineering Education*, July 2004, 223-231.
--a comprehensive and compelling analysis of the impact of active learning experiences