Teaching Matters

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KU CENTER FOR TEACHING EXCELLENCE
The University of Kansas

Hybrid teaching leads to increased student engagement and improved critical thinking skills in large classes

For almost five years, dozens of faculty members at Miami University have been participating in their Top 25 Project. The project involves MU's 25 largest total enrollment lower-division courses, which are being transformed in order to "institutionalize 'engaged learning' across the curriculum" (Hodge et al p. 30).

To be part of the Top 25 Project, faculty members agreed to redesign their courses to meet several key criteria. Two of these were:
• Reduce the amount of class time spent on providing descriptive material or facts by helping students learn this material outside of class, and
• Increase the amount of time students devoted to their courses.

The course redesign initiative has led to various models focused on student engagement and inquiry-based learning. Hodge et al describe some courses as having developed an "'inverted classroom' strategy, in which information dissemination happens outside the classroom and in-class time is used for activities that benefit from student collaboration and active instructor support, such as

real-life problem-solving and case studies" (p. 31).

Other courses are using technology inside and outside the classroom to increase engagement and promote critical thinking.

According to Hodge et al, "early evidence indicates that the Top 25 Project is making significant progress toward its goals" (p. 32).

Several facets of the Top 25 Project include hybrid, or blended, teaching. Shifting coverage of some material to outside of class, rather than delivery via lectures, is benefitting both students and instructors. For example, students in redesigned courses reported that they were spending more time on their course work and working harder than they anticipated to meet faculty expectations.

In this issue of *Teaching Matters*, we'll examine research on hybrid teaching and look at ways KU instructors are using it to improve learning on our campus.

—J. Eddy

Hodge, D. C., Nadler, M. K., Shore, C., & Taylor, B. A. P. (Sept/Oct 2011). Institutionalizing large-scale curricular change: The Top 25 Project at Miami University. *Change*, 28–35.

Liberating class time for richer learning

Dan Bernstein, CTE

CTE workshops often highlight ways of teaching that promote longer-lasting, more generalizable, and deeper learning than typically results from typical class lectures. These methods include a variety of activities such as writing during class, students exchanging information and ideas they have gotten from separate readings, working on problems alone and in teams, complex demonstrations of relevant phenomena, discussion of applications of ideas, and general exchange of ideas related to course content and goals.

After reading about such teaching ideas and considering the evidence that they yield richer learning, many colleagues respond with something like, "Those all sound really good to me, but I can't give that much time in class. I have to cover the material in the course, and it already takes all my lecture time. I can't add anything else to class time." The dilemma of finite time permeates our lives at many levels, and most of the time we cannot do anything about it.

We now have an opportunity to capture a bit of time so we can teach in ways that have seemed an unreachable luxury. Many organizations now offer online systems that effectively deliver basic level content in forms that optimize learning, provide useful low-stakes feedback to students, and give instructors detailed information about student participation and understanding. When faculty members can count on some coverage being accomplished outside of class, valuable face-to-face time becomes available for the engaging activities that deepen understanding and promote retention and generalization.

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Susan Williams' essay describes just such a gradual shift in time allocation in her essay about a course she is teaching this semester. She knew that more time needed to be spent on complex problems, but her lecture time was taken up covering basic material that some students struggled with. She is creating video lectures covering the simple problems, and students are required to watch them before class. Now they can review those videos in depth, and she has more time to promote advanced problem solving in class.

As reviewed for us by Angela Lumpkin, there is a growing body of evidence supporting the advantages of building more learning into the time outside of class. No longer just repetitive drill, many online tutorials provide engaging visual material and helpful self-assessment tasks. And as demonstrated by our Summit speaker, Marsha Lovett, there is more learning when online foundational learning is combined with live interaction among students and a professor, especially when the professor can focus on areas that students find most difficult.

In an important sense, there is nothing new going on. If students take time to study assigned readings and engage in the practice activities asked for, there would be less need to spend lecture time rehashing that content. Online tutorials are much better than books at tracking what material students actually encounter and how well they have gotten the important ideas and evidence. In many cases, a tutorial on former lecture content can still be in addition to the assigned

Workshops to focus on portfolios, privacy and student evaluations

In October and November, CTE will host three mini-workshops in 135 Budig Hall. All workshops are open to faculty members, instructional staff, and GTAs. CTE will provide light lunches at each. Please register by contacting us at cte@ku.edu.

Oct. 17, 12 - 1 PM: Enhancing Student Engagement with Reflective Portfolios
This session will elaborate the utility of portfolios for enhancing student engagement, provide examples of portfolio assignments, and offer guidelines for assessment rubrics.

Before the mini-workshop, please identify:
• A course in which you want to use portfolios,
• Some relevant goals for that course, and
• Ideas about possible artifacts for inclusion.

Nov. 3, 12:30 - 1:30 PM: Making Sense of Student Data from Teaching Evaluations
In this workshop, you'll discover time-efficient ways to:
• Accurately and succinctly represent and describe student survey of teaching results
• Gather, track and interpret evidence of learning, which you can use to refine your courses

Please bring:
• Student evaluation data from at least one semester (multiple semesters, if possible)
• Rubrics or other grading tools you use
• A laptop (if available or desired) to work on a draft of a narrative and/or visual representation of student learning

Nov. 30, 12 - 1 PM: Teachable Moments: Privacy Issues in a Era of Show and Tell *(new date)*
By participating in this workshop, you'll learn:
• How can you use social media in your courses? Why is it useful in some disciplines and not in others?
• What should you avoid doing? What are the grey areas?
• How does KU's policy on privacy intersect with contemporary culture, values and tools of engagement?
• How can we model effective uses of social media that students can take into their careers/lives?
Bring to the workshop:
• Questions about using social media in a course

Liberating class time for richer learning

reading, as students typically report reading far less than the conventional two hours per class period. With this model, students would come to class having had both reading and lecture content, ready for the opportunity to use that foundation for advanced and engaging forms of thinking.

Some universities are using this hybrid (or blended) model to free up classroom space (see page 8). Online time can be substituted for face-to-face time, leaving the out-of-class reading and homework more or less as before. That gives some enhanced flexibility all around; students and faculty members have fewer fixed time activities, and more courses can be put into a fixed supply of classrooms. I prefer to think of online instruction as an opportunity to liberate a portion of the face-to-face time from the low-end task of being a talking book; the amount of live interaction remains the same and that transformation of class time allows my students and me to move our conversation into a realm of understanding appropriate for university education.

What is hybrid learning? A literature review

Angela Lumpkin, Health, Sport & Exercise Sciences

Much more than combining a traditional classroom with online information and activities, blended or hybrid learning is a systematic process of selecting the most appropriate media to enable students to achieve learning outcomes. The integrative approach of blended learning significantly reduces the time dedicated to traditional lectures and replaces these with individually paced student engagement in digitally delivered learning activities.

The instructor in a blended course becomes a facilitator of learning. He or she begins by determining whether course goals can be achieved more effectively and efficiently online, face-to-face, or through a combination of instructional approaches. Students can learn foundational knowledge online through interactive media, especially when these are linked with explicit learning objectives and activities for assessing their learning. Face-to-face instruction builds on what students have learned online, facilitates the use of questions and answers about more difficult content, and elicits greater critical thinking and analysis (Amaral & Shank, 2010). A combination of these two approaches could include short, online instructor podcasts or tutorials of challenging concepts, and in-class group activities such as using think-pair-square-share to answer thought-provoking questions or fishbowls with small groups of students discussing topics while observed by classmates.

Integral to the structure and content of blended courses are formative and summative student assessments that provide immediate and targeted feedback as students are learning. For example, interactive learning activities can be scaffolded from easier to more challenging exercises as students complete these and receive immediate feedback when their answers indicate they have not yet learned foundational information. Qualitative and quantitative evaluations using cognitive and affective measures of students' performances help instructors emphasize more advanced learning and facilitate critical thinking during classes.

Blended learning utilizes electronic and mobile educational resources, as well as electronic tutoring to match the needs of today's students. The flexibility of online, self-paced, and interactive instructional resources enables traditional and non-traditional students to read, study, complete activities, and receive feedback while taking greater responsibility for their learning. Blended courses allow students to work collaboratively and socially in online learning communities, or they engage independently. Multi-media delivery of instructional components in a variety of learning environments allows for flexibility in time spent and pacing, interaction, and collaboration. Whether asynchronous media, like viewing a short video used for lower cognitive levels of learning, or synchronous use of media, like participating in a discussion board that focuses on higher cognitive involvement, blended courses use instructional strategies

> Whether asynchronous media, like viewing a short video used for lower cognitive levels of learning, or synchronous use of media, like participating in a discussion board that focuses on higher cognitive involvement, blended courses use strategies designed to help each student achieve learning goals.

How and why I'm developing a hybrid course

Susan Williams, Chemical & Petroleum Engineering
with Carol Sella, Applied Behavioral Sciences

Historically, about 25% of the students in my sophomore-level Material and Energy Balances course struggle. A significant number of these students are very capable, but they develop skills more slowly than the top students and have difficulty keeping up. During the course lecture and discussion sessions, they need more time than I can allow in order to solve problems. Due to the number of students in the class, graders and TAs need at least a week to provide feedback (limited to checks and marks for correct and incorrect responses), which exacerbates the situation. After teaching the course several times, I realized that students needed extra practice problems and timely feedback. But how could I do this and still cover the material I needed to?

My first step was to analyze the way I had structured the course:

- Three 50-minute lectures per week that provided general information and solutions to one or two problems;
- Two homework assignments per week, which gave students opportunities to practice the skills learned in class;
- One two-hour discussion section guided by TAs that targeted the solution of problems.

I recognized that valuable in-class time was being spent reviewing concepts that students should have mastered before they came to class. In addition, I was never able to get to solutions of complex problems in class, since many students had trouble with simple ones. I knew I needed to restructure the course.

I'm doing that this fall, by changing the course to a hybrid one. The new structure looks like this:

Online information/content delivery—I'm developing 5–15 minute videos in which I record myself solving basic problems related to a given class session. In the videos, students are able to watch problem solutions at their own pace, as many times as they need. Students are required to watch the videos before they come to class.

Homework for mastery—Homework assignments are now online, through Sapling Learning (www.saplinglearning.com). Sapling Learning generates a myriad of problems, so students have many opportunities to practice skills and can solve most problems at their own pace until they master them. Grading is done automatically, and directed feedback is given to students as they solve the problems. All student responses are reported to me (number of attempts, types of errors, among other information). By using Sapling for homework assignments, I can use in-class time to address specific errors students made while they were solving the online problems, and we have more in-class time to work on complex problems.

Repurposed discussion sections—Since students are solving a wide range of homework problems online, discussion sections are being used for hands-on work in which students apply equations to real data and use higher-level concepts.

By making these changes, I hope to help more students reach higher levels of thinking about material and energy balances. Already, I've seen that students are able to solve simple problems more easily in class, and they don't seem to feel as rushed when we work on complex problems. Instruction time is better focused, and there's significantly more in-class time for students to develop a deep understanding of course concepts.

Next spring, I'll report on what worked well with this new hybrid course, as well as what I've learned from the experience. To be continued …

What is hybrid learning?

designed to help each student achieve learning goals.

Optimally, a collaborative team with expertise in content, instructional design, multimedia, and assessment develops blended courses. Success depends on the design team's skills for communicating digitally to students with different learning needs and cognitive abilities and using multiple instructional pedagogies, such as role playing and discussion groups, and technological tools, such as animations and simulations.

Well-designed, blended courses enhance student learning and increase retention (Amaral & Shank, 2010). These authors reported that digital learning materials such as tutorials and podcasts engaged students by increasing their time-on-task. In addition to greater learning and information literacy among students, other benefits suggested by Dziuban, Hartman, and Moskal (2004) include efficiency in classroom use and lowered instructional delivery costs. Faculty members and institutional administrators have the opportunity to advance student learning and achieve other benefits if they chose to invest resources into increased blended learning.

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KU faculty members implement hybrid learning in courses

Many KU professors use a form of hybrid learning in their courses. Several examples are posted in CTE's Gallery of course portfolios, including the following:

Paul Atchley: Enhancing Major Preparation and Success Using an Online Course (www.cte.ku.edu/gallery/visibleknowledge/atchley2/index.shtml)

Atchley's portfolio outlines how he created an online course to help undergraduate psychology majors understand the discipline and plan their coursework with career goals in mind. All content is offered exclusively via Blackboard. Readers of this portfolio will learn:

• The department's purposes in developing the course and the rationale for offering it online;
• What the course goals are and how the course is structured to help students meet those goals;
• How course effectiveness is determined;
• The impact the course has had on students' awareness of major requirements and learning opportunities beyond the classroom, as well as the impact on students' career planning skills;
• Lessons learned from developing an online course for 350 students per year.

Kim Warren: Invigorating Class Discussion Using Multiple Engagements with the Past and Present (www.cte.ku.edu/gallery/visibleknowledge/warren/)

Warren describes how she reorganized her history survey course so that students would participate more in class discussions, increase how much they retained from the course, and improve their ability to think like historians. To accomplish this, she modified out-of-class assignments and established Blackboard discussion groups. Readers of this portfolio will learn:

• How to facilitate learning for students who bring various levels of skill to a course;
• Ways to frontload preparation before the first class meeting each week;
• The impact of connecting online postings with in-class presentations and discussions;
• Why giving students multiple opportunities to learn about a topic improves their ability to talk about and analyze information.

Other excellent examples of hybrid teaching can be seen in portfolios by Leslie Bennett, Mugur Geana, Sonya Lancaster, and Feirong Yuan at www.cte.ku.edu/gallery.

Center for Online and Distance Learning opens

For the 2011 Summer session, a group of CLAS faculty members collaborated with the new KU Center for Online and Distance Learning (CODL) to offer eight online courses. The instructors and CODL staff developed new online courses and enhanced existing courses by increasing interactivity with video and online learning tools.

The CODL is a centralized campus resource created to help instructors design, develop and implement online and hybrid courses. The CODL staff consists of project managers, academic editors and instructional designers who have extensive backgrounds in online teaching and learning environments. The online courses employ features and use technology to improve interactivity and accessibility for students.

For information about developing online courses, contact the CODL at 785-864-7886.

Ten questions to consider when redesigning a course for hybrid teaching and learning

A hybrid or blended course, by definition, reduces face-to-face "seat time" so that students can pursue additional teaching and learning activities online. To be successful, a hybrid or blended course requires careful pedagogical redesign. These ten questions offer you a way to start thinking about some of these design issues.

1. What do you want students to know when they have finished taking your hybrid course?
2. As you think about learning objectives, which would be best achieved online and which would be best achieved face-to-face?
3. Hybrid teaching is not just a matter of transferring a portion of your traditional course to the Web. Instead it involves developing challenging and engaging online learning activities that complement your face-to-face activities. What types of learning activities do you think you will be using for the online portion of your course?
4. Online asynchronous discussion is often an important part of hybrid courses. What new learning opportunities will arise as a result of using asynchronous discussion? What challenges do you anticipate in using online discussions? How would you address these?
5. How will the face-to-face and out-of-class components be integrated into a single course? In other words, how will the work done in each component feed back into and support the other?
6. When working online, students frequently have problems scheduling their work and managing their time, and understanding the implications of the hybrid course module as related to learning. What do you plan to do to help your students address these issues?
7. How will you *divide* the percent of time between the face-to-face portion and the online portion of your course? How will you *schedule* the percent of time between the face-to-face and online portion of your course; i.e., one two-hour face-to-face followed by one two-hour online session each week?
8. How will you divide course grading between face-to-face and online activities? What means will you use to assess student work in each of these two components?
9. Students sometimes have difficulty acclimating to the course Web site and to other instructional technologies you may be using for face-to-face and online activities. What specific technologies will you use for the online and face-to-face portions of your course? What proactive steps can you take to assist students to become familiar with your Web site and those instructional technologies? If students need help with technology later in the course, how will you provide support?
10. There is a tendency for faculty to require students to do more work in a hybrid course than they normally would complete in a purely traditional course. What are you going to do to ensure that you have not created a course and one-half? How will you evaluate the student workload as compared to a traditional class?

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