UNIVERSITY OF MINNESOTA
CENTER FOR TEACHING AND LEARNING I ACADEMY OF DISTINGUISHED TEACHERS

VOLUME 2 | NUMBER 2

TRANSFORM
Scholarship • Teaching • Learning

OCTOBER 2007

IN THIS ISSUE

Learning in the Pit

Experiments in Economics and Teaching

by **Donald J. Liu, J. D. Walker, Theresa A. Bauer, and Meng Zhao**

Donald J. Liu

Economic concepts can be extremely abstract, particularly for students new to the field. For instance, many students have trouble grasping the idea of a "downward sloping demand curve," even though they have plenty of practical experience with it in their personal lives. In class, they will readily agree that when the price of a popular commodity falls, they, like other rational consumers, will begin to buy more of it. However, what this has to do with the formal notion of demand curves often remains hidden to them. It's a recurring problem in introductory economics: *how to make abstract concepts more concrete and thus more comprehensible for undergraduates.*

One way to address the problem would be to reenact the economic situation in the classroom through "economic experiments" (Laury 2007). For example, before introducing the abstract idea that demand curves slope downward, we could engage students in a live commodity auction during class. Acting under preset guidelines, students could trade with each other, buying and selling a product under various price scenarios. They would generate data – buying and selling points – that could be analyzed and discussed in class. If the conditions are well managed, they would be able to see that their actions in the trading pit were in agreement with the theory they read in their texts.

"Because our results were encouraging, and because our surveys indicated that students were engaged by the experiments…, [this pilot] has given us data that will drive a redesign of our project."

The problem with this approach, though, is that it imposes large costs on the instructor. Imagine working with pen and paper to record the transaction prices of 30 students over several scenarios. You soon have well over a hundred datapoints, each of which has to be quickly verified, consolidated, and graphed. By taking advantage of an audience response system (ARS), we've been able to significantly reduce these costs along with minimizing the time lag between the trading experiment itself and student reflection on the data.

The ARS – also informally known as "clickers" – is a technology that allows students to respond privately to instructor questions using small wireless keypads. There are many types of ARS; what they have in common is that they are fundamentally devices for questioning and feedback. They enable instructors to pose and students to answer questions, and typically they have the ability to produce a display of student answers for review and discussion.

The ARS can be used to facilitate many different teaching techniques:

- an assessment device for giving instructors a snapshot of student understanding,
- a feedback mechanism for obtaining opinions on the instructor's teaching,
- a testing instrument for engaging students in peer or self-assessment,
- a vehicle for initiating and facilitating student discussion, and
- a data collection tool for implementing experiments using human responses.

An extensive literature on the ARS documents a number of potential educational benefits of using the system, including improvements in student achievement, increased attendance, reduced attrition, and a more engaged class environment (Angelo & Cross, 1993; Cox & Junkin, 2002; Crouch & Mazur, 2001; Draper & Brown, 2004).

Despite these advantages, to our knowledge the ARS has never before been used to facilitate classroom economic experiments. Although we felt that the ARS

(continued on page 5)

Center for Teaching and Learning

Transform is published twice each year by the University of Minnesota's Center for Teaching and Learning and the Academy of Distinguished Teachers.

www.transform.umn.edu

Mailing Address
Transform
Center for Teaching and Learning
315 Science Classroom Building
222 Pleasant Street S.E.
Minneapolis, MN 55455
E-mail tran@umn.edu
Phone 612.625.3041

notes

EDITOR'S NOTE

In her recent book on the Scholarship of Teaching and Learning (SoTL), Kathleen McKinney remarks on the range of existing views on what actually constitutes SoTL. To make her point, she describes a continuum of related concepts: *good teaching, scholarly teaching,* and the *Scholarship of Teaching and Learning. Good teaching,* she argues, promotes student learning and positive student outcomes. *Scholarly teaching* implies a scholarly approach to teaching (reading literature on teaching, writing informally, etc.) Finally, the *Scholarship of Teaching and Learning* goes beyond both of these and produces public scholarship that can be critically reviewed and adapted by others. We'll go deeper into these categories in future issues, but for now, we'll say that *Transform* aims to report on this larger range of teaching activity, with particular attention paid to SoTL.

In this issue, we see the tension between these categories in an interview with Leslie Schiff, a professor in the Department of Microbiology, as she discusses the vexing problem of turning private classroom research into public scholarship. "SoTL seems to me to be experiments about teaching…. But these are my own little personal experiments, so how do I take my personal experiments and turn that into the SoTL universe?"

In their essay, Donald J. Liu, J.D. Walker, Theresa A. Bauer, and Meng Zhao discuss a classroom experiment "on classroom experiments" in an introductory economics course. Confused? They simply assessed the learning gains of students who reenacted real-life economic scenarios – such as pit market trading – against those students who learned the same concepts with a more traditional method. The data, that were positive but not significant, helped the team redesign the course for a new round of experiments. What we learn from this is not so much that the experimental results revolutionize classroom practice, but that the data often teaches us how to adjust and refine our teaching methods. It gives us strong reasons to make change.

Last issue, we began printing a series of critical memoirs that the "Making Meaning of a Life in Teaching" program has generated over the past three years. In an excerpt from "Hoops & Hurdles: The Unlikely Story of How I Learned How I Learn," Professor Ed Griffin, from the Department of English, reflects on how to make Ralph Waldo Emerson's concept of the "American Scholar" come alive for current students through basketball great Bill Russell.

Last spring, Harvard Physics Professor Eric Mazur addressed the 2007 Academy of Distinguished Teachers conference. For those who may have missed his address, "Confessions of a Converted Lecturer," we include a review of it by Bill Rozaitis. Mazur's "peer instruction" framework is part of a larger movement in cooperative learning that was pioneered by University of Minnesota professors Karl Smith, Roger Johnson, and David Johnson.

A year ago, we ran an article by Vice Provost for Faculty and Academic Affairs Arlene Carney that outlined a proposed set of undergraduate student learning outcomes. We can now report that this past May, after much consultation, the Faculty Senate approved the draft student learning outcomes as official policy for the Twin Cities campus. They can be viewed at:
http://academic.umn.edu/provost/teaching/cesl_loutcomes.html.

Finally, this issue marks a change in staff. David Wehner, who ably served on the editorial board, accepted a faculty position at Mount St. Mary's University, and we wish him well. Bill Rozaitis, from the Center for Teaching and Learning, joins us. This issue also marks our first full year of publication. We hope you find this forum useful, and we look forward to another intriguing year.
– Paul Baepler

www.transform.umn.edu

Faculty Scholarship on Teaching and Learning

Articles published by UM Faculty and Staff

O'Donovan, K. F. & Simmons, S. R. (2006). Making meaning of a life in teaching: A memoir-writing project for seasoned faculty. ***To Improve the Academy, 25,*** **315-326.**

The University of Minnesota's faculty development project "Making Meaning of a Life in Teaching" promotes collegiality and enhances self-reflection for those who are experienced classroom instructors. Started in October 2003, this project provides a forum that invites participants to examine specific memories from their teaching lives and to transform those recollections into a written memoir. This article explores the use of memoir as an effective tool for faculty development, describes the project's structure and components, and presents both co-facilitator and participant perspectives on the process and the memoir product.

Streveler, R. A., Borrego, M. & Smith, K. (2006). Moving from the scholarship of teaching and learning to educational research: An example from engineering. ***To Improve the Academy, 25,*** **139-149.**

In *The Advancement of Learning,* Huber and Hutchings (2005) state that the "scholarship of teaching and learning . . . is about producing knowledge that is available for others to use and build on" (p. 27). Can viewing the scholarship of teaching and learning (SoTL) as an educational research activity help make SoTL findings more available and easier to build on? This article describes a program that prepared engineering faculty to conduct rigorous research in engineering education. Project evaluation revealed that engineering faculty had difficulty making some of the paradigm shifts that were presented in the project.

Zualkernan, I. A., Allert, J., & Qadah, G. Z. (2006). Learning styles of computer programming students: A Middle Eastern and American comparison. ***IEEE Transactions on Education, 49*****(4), 443-450.**

Although there are many studies addressing the relationship of learning style to outcomes in engineering courses, few have attempted direct cross-cultural comparisons. This study investigates similarities and differences in the learning styles of computer science and engineering students at a Middle Eastern institution and an American university in the Midwestern United States. Comparative data on student learning style profiles and course outcomes suggest that, despite vast cultural differences, strong similarities exist between learning styles of these students. Seemingly, a consistent pattern in how these students learn across cultures also exists. These findings have significant implications for the creation of globally effective teaching materials.

Moore, R. (2006). Do introductory science courses select for effort or aptitude? In J. J. Mintzes & W. H. Leonard (Eds.), ***Handbook of College Science Teaching*** **(pp. 137-145). Arlington, VA: NSTA Press.**

Do introductory science courses reward aptitude or effort? Randy Moore of the University Minnesota concludes that students believe their own effort to be the most important determinant of successful learning in their science courses, and, when given the opportunity, students even predict that they will exert the effort required to achieve their goals. In this chapter, the author describes a study that explores students' effort-related behaviors and whether those behaviors are consistent with their beliefs.

My Own Private SoTL Universe

Interview with Leslie Schiff

Editor's Note: In the interview below, Leslie A. Schiff, professor in the Department of Microbiology, describes her teaching and the barriers she faces in turning her teaching experiments into scholarship. The interviewer is David Z. Wehner, assistant professor of English at Mount St. Mary's University.

David Z. Wehner: Tell me about your personal history with SoTL.

Leslie Schiff: I'm not even sure that I know what SoTL is. My personal history is that I have no background in teaching. I have a background in research, so I came here, got this job, and I have to teach. I was a Type A person who doesn't like to do a bad job at anything. So fear motivated me to take some CTL workshops. I thought, other people know how to do this, so I'll get some strategies. And I basically kept going to workshops; then the next thing I knew, I had been sucked into the vortex of this teaching thing.

So my interest comes out of wanting to do a good job at the part of my job that I was not at all trained to do.

D: What do you see as the impediments to doing SoTL?

L: How do you take a little classroom experiment and turn it into SoTL? That's one barrier. Because even though I do experiments for a living (I don't actually do them; I tell other people to do them), as a scientist there's a way of doing experiments. And SoTL seems to me to be experiments about teaching, and then getting some information from those, and then using that information and hopefully publishing it. But these are my own little personal experiments, so how do I take my personal experiments and turn that into the SoTL universe? I don't know how to get from here to there.

"How do you take a little classroom experiment and turn it into SoTL?"

And the other barrier is time. If I already don't have enough time to do everything as well as I would like to, where am I going to carve out the intellectual space to think about my SoTL experiments?

D: Does this time crunch arise, in part, because SoTL doesn't count towards promotion and tenure? Does it count toward P & T in your department?

L: Does it count? It does count, but only if it's important in the eyes of your chair. Could my department survive and flourish if many of the faculty, instead of getting one more publication in the *Journal of Molecular Whatever*, were publishing wherever it is that SoTL people publish? That's not going to get me my next research grant. That's not going to raise my prominence in my field. So I don't think that, in the sciences, the culture is set up to promote SoTL as a worthwhile activity.

The institution wants to be one of the top three research institutions in the stratosphere, in the universe, and that requires getting federally-funded grant dollars on my side of the street. And if you're working on a SoTL publication, you're not working on the publication for the *Journal of Virology.* So my chair couldn't survive as a chair and get his money from the medical school if many people in the department were writing SoTL papers and not writing their other papers. It's not an institutional problem; it's just the way things are.

"It's a form of scholarship that I do or I dabble in because it feeds my soul and because it makes me a happier teacher and engages me; it makes me excited about teaching my class."

But I'm thankful that I have a chair who recognizes what I can do for the institution. And the medical school, when I went up for promotion, said that the criteria for promotion from associate to full professor required national or international prominence on a certain scale. Now, do I meet those criteria with respect to my scientific discipline? Probably. But I've also won national teaching awards for teaching undergraduates. So the medical school had to be willing to say, "You know what, we are forward-thinking about this. This is okay. We view somebody who has documented their teaching scholarship as valuable to the institution."

D: I guess I was expecting you to say that it was really going to come down to whether the chair says "yes" or "no." But it sounds like you are saying it's about the people who make the grants.

L: The people who are issuing grants don't care about my teaching. Not at all. I don't know what scholarship looks like in other disciplines, but in my discipline, scholarship has to do with my federally-funded grant dollars, my publications, the beans that are counted when people decide whether I should get funded again.

So that's the SoTL barrier. It's a form of scholarship that I do or I dabble in because it feeds my soul and because it makes me a happier teacher and engages me; it makes me excited about teaching my class. If I can think, "What am I going to do this year?"…that excites the scientist in me because it is an experiment! What will I do? How will the students react? What will the outcomes be? And then what will I decide to do next? But I haven't taken it further and published anything. I still do these experiments for my own benefit. I am my own SoTL universe.

Leslie Schiff

D: I wonder if SoTL is more daunting for someone in the hard sciences. It seems like the idea behind SoTL is that you are going to take the scientific method and apply it to the classroom. But if you're someone coming from the humanities, the scientific method doesn't necessarily have the sort of weight it does to someone in the hard sciences.

L: Yes, perhaps I might make it harder than it is. What would be a good controlled experiment? I know how to plan experiments in my own discipline. I don't know what it is to do a good controlled SoTL experiment. Or I don't have time for the lit review that I would need to do in order to publish something in SoTL. I don't have a command of the SoTL literature like I do in my own field that is going to give me the confidence to go forward.

So I think you're right. People in the sciences may make this harder than it is because of just the way we think and because there may be a discipline-related cultural divide that is greater. So I need to step over – to use a scientific phrase – the activation energy barrier. To decide to get out of your chair is harder than the movement once you're actually out of the chair and moving.

D: Tell me about some of your classroom experiments.

L: I teach a course on the biology of viruses, and many of my students are graduating seniors. I teach them in the spring of their senior year, so I face a motivational hurdle. I think students these days are so bombarded with information that their learning is very often a veneer. Their knowledge is very thin. They don't understand that to really learn something, to figure something out, to find the holes is hard. And it makes your brain hurt. And it's frankly unpleasant. Until you have the epiphany. And then it's like, oh wow, I just put all of that together.

I make my students work really hard. And one of the things that I have them do is concept maps. I give them a list of 10-12 concepts, and they need to draw the map. The richer the map is, the more accurate the links, the better the score. And the benefit is really in forcing the students to actually not be able to Google it; you can't Google a concept map. You have to think about the relationships between the entities. But they don't want to do that – because its hard – because they have to generate the understanding themselves.

So here could be my experiment for next year: everything except the exams will be optional. You can choose. You want to do a concept map? I'll give you a good argument for why I assign them. I'll give you that, but then make your own choice, and we'll see. That would be a controlled experiment. We'd have those who choose not to do the concept maps because they're homework, and then there'd be those who will choose to do them. And we'd see how they do on their exams.

A couple of years ago, I did another experiment, and this one has stuck. I teach at 8:15 in the morning, in January, with graduating seniors. I also like to do a lot of active things. That's a hard mix at any time, but I had one particularly bad teaching year when I had a very passive-aggressive student who didn't want to play my games. Who said to me, "I will be the best student in your class even if I never show up." So I thought, "Okay." I basically made them show up, and my life was miserable that year.

D: Because of this one student?

L: Because of this one student! And so I thought, okay, here's my experiment in response to this situation: participation is entirely optional. But you need to contract for it. So you can contract "plus participation" or you can contract "minus participation." And if you contract "minus participation," I promise you I won't care if you come to class or you do not come to class. There are different grading schemes for plus and minus. But if you say that you're going to come to class, I want you to tell me how you are going to participate. You don't need to raise your hand in class. You can participate online. You can form study groups. I want evidence that you are participating.

(continued on page 7)

Upcoming Events

Cherrie Moraga Workshop and Discussion

"Out of Our Revolutionary Minds: Toward a Pedagogy of Revolt"

Thursday, October 18, 2007
2 – 4 p.m.
Coffman Memorial Union
Mississippi Room
Space is limited to 50.
RSVP oed@umn.edu

Cherrie Moraga Evening Program

"A Chicana Accounting of Changing Consciousness"

Thursday, October 18, 2007
7:30 p.m.
Carlson School of Management
3M Auditorium
RSVP oed@umn.edu
Sponsored by: The Office of Equity and Diversity

John Bransford to speak on the Twin Cities campus

Wednesday, January 23, 2008

Dr. John D. Bransford is James W. Mifflin University Professor of Education and Psychology at the University of Washington. He is the co-author of *How People Learn: Brain, Mind, Experience and School.*

More information will be coming at **www.academic.umn.edu/provost/teaching/cesl.html**
Sponsored by: the Provost's Council for Enhancing Student Learning and the Office of the Vice Provost for Faculty and Academic Affairs

Academy *of* Distinguished Teachers *News*

On April 23, 2007, 12 University faculty, recipients of the University's highest honor for excellence in teaching, received awards for either the Horace T. Morse-University of Minnesota Alumni Association Award for Outstanding Contributions to Undergraduate Education or for the Award for Outstanding Contributions to Postbaccalaureate, Graduate, and Professional Education. Upon receipt of one of these awards, given at the April ceremony, all recipients were also inducted into the University's Academy of Distinguished Teachers.

The Academy of Distinguished Teachers (ADT) has among its membership faculty from the University's Crookston, Duluth, Morris, and Twin Cities campuses across all disciplines. The mission of the ADT is:

- to recognize and celebrate teaching excellence,
- to foster the continued improvement of teaching and learning at the University of Minnesota, and
- to strengthen the resources necessary to do so.

For more information about this year's distinguished teaching award recipients, visit

http://www.alumni.umn.edu/distinguishedteaching.html.

For more information about the ADT, visit their Web site at **www.adt.umn.edu** or contact Karen Zentner Bacig, Office of the Vice Provost for Faculty and Academic Affairs, **kbacig@umn.edu**.

This year's award recipients:

2006-2007 Horace T. Morse-University of Minnesota Alumni Association Award for Outstanding Contributions to Undergraduate Education

Praveen Aggarwal, Department of Marketing, Labovitz School of Business and Economics, University of Minnesota, Duluth

Jay C. Bell, Department of Soil, Water and Climate, College of Food, Agricultural, and Natural Resource Sciences, University of Minnesota, Twin Cities

Thomas R. Hoye, Department of Chemistry, Institute of Technology, University of Minnesota, Twin Cities

Patricia James, Department of Postsecondary Teaching and Learning, College of Education and Human Development, University of Minnesota, Twin Cities

Ned Mohan, Department of Electrical and Computer Engineering, Institute of Technology, University of Minnesota, Twin Cities

Paula L. O'Loughlin, Political Science, Division of the Social Sciences, University of Minnesota, Morris

Joel B. Samaha, Department of Sociology, College of Liberal Arts, University of Minnesota, Twin Cities

2006-2007 Award for Outstanding Contributions to Postbaccalaureate, Graduate, and Professional Education

Maria Damon, Department of English, College of Liberal Arts, University of Minnesota, Twin Cities

John W. Day, Departments of Neurology and Pediatrics, Medical School, University of Minnesota, Twin Cities

Ruth A. Lindquist, Adult and Gerontological Health, School of Nursing, University of Minnesota, Twin Cities

Thomas W. Molitor, Department of Veterinary Population Medicine, College of Veterinary Medicine, University of Minnesota, Twin Cities

Bruce F. Wollenberg, Department of Electrical and Computer Engineering, Institute of Technology, University of Minnesota, Twin Cities

– Karen Zentner Bacig

National Views

Recent & Recommended Reading

On the Scholarship of Teaching and Learning

Pellegrino, James W. & Chudowsky, Naomi.
Knowing What Students Know: The Science and Design of Educational Assessment
National Academies Press, 2001.

I find this book to be a wonderful resource on developing and using good assessments both in teaching and in research. The authors talk about assessment as a type of evidence that can be used to determine what students know and how they reason, and they discuss important issues related to gathering evidence. An "assessment triangle" is introduced, which has as its three corners: a model of students COGNITION and learning in the subject area, beliefs about what will provide evidence of students understanding and competency in this area (OBSERVATION), and an INTERPRETATION process for making sense of the assessment data (evidence). This triangle is very useful to me when developing assessments for my course or instruments for my research on statistical reasoning.
– Joan Garfield (Professor Garfield ia a Morse-Alumni Distinguished Teaching Professor in the Department of Educational Psychology.)

Gelman, Andrew & Nolan, Deborah.
Teaching Statistics: A Bag of Tricks
New York: Oxford University Press, 2002.

I use this book as a text in my graduate course: *Becoming a Teacher of Statistics.* Andrew Gelman (Columbia University) and Deborah Nolan (UC Berkeley) are highly regarded statisticians who are concerned about preparing graduate students to become excellent teachers of statistics. This book contains many practical suggestions and resources for class activities, projects, activities, data sets, and course design. Topics go beyond an introductory course to more advanced statistics courses. Each time I read this book I discover a new idea that I want to try out in my class. I especially like their ideas for getting the course off to a good start by some motivating data collection activities on the first day. I also like their ideas for helping students learn to critically read and evaluate statistics and graphs in the media.
– Joan Garfield

Savory, Paul; Nelson Burnet, Amy; & Goodburn, Amy.
Inquiry into the College Classroom: A Journey Toward Scholarly Teaching
Boston: Anker, 2006.

This is a helpful volume for instructors who want to investigate "scholarly teaching." Scholarly teaching is often thought of as the first step toward the scholarship of teaching and learning (SoTL). Like SoTL, scholarly teaching is predicated on a model that involves reflection, inquiry, testing, and evaluation; however, it doesn't necessarily involve publication or dissemination beyond the departmental or collegiate levels. The authors provide an extremely helpful introduction that creates a strong and useable framework for conducting scholarly inquiry into classroom issues. Subsequent chapters take a case study approach, taking on different issues and challenges that typically arise when engaging in scholarly teaching. The book provides a useful overview to the practice of scholarly teaching, and those new to the concept will find the opening chapter of particular value.
– Paul Baepler

upcoming conferences

The SoTL Commons
Statesboro, Georgia
November 1-2, 2007
http://www.georgiasouthern.edu/ijsotl/conference/

This is the first meeting of this new conference sponsored by Georgia Southern University. The keynote address will be given by Mary Taylor Huber and the featured speaker will be Robert Beichner. The conference is meant to be "a companion" to the online journal, *International Journal for the Scholarship of Teaching and Learning.*

The Collaboration for the Advancement of College Teaching & Learning
Bloomington, MN
November 16-17, 2007
http://www.collab.org

"The Collaboration" holds two conferences each year, and the theme for the 2007 conference is "Promoting Deep Learning: Cultivating Intellectual Curiosity, Creativity, and Engagement in College." The keynote address will be delivered by Ken Bain, author of *What the Best College Teachers Do.* The winter "Collaboration" conference will be on "Critical Thinking in the Age of the Internet" and will be held in February 2008.

The London SoTL 7th International Conference
London, England
May 15-16, 2008
http://www.city.ac.uk/ceap/sotlconference/index.html

The theme for the conference is "SoTL Connect: The Challenge of Boundaries for the Scholarship of Teaching and Learning." The meeting will follow three "strands." Strand 1) Broadening SoTL horizons: new methodologies, new alliances. Strand 2) SoTL in context: taking account of the realities of practice. Strand 3) Boundary-crossing: approaches & technologies. Proposals will be accepted this fall.

The Teaching Professor Conference
Kissimmee, Florida
May 16-18, 2008
http://www.teachingprofessor.com/conference/

This new conference is now in its fifth year. Hosted by the popular national newsletter, *The Teaching Professor,* the meeting draws presenters from across the nation. Proposals can be submitted online and are due by October 19, 2007.

Fall 2007

CALENDAR

October

Finding Electronic Full Text: Tips and Tricks
Monday, October 1, 12 – 1:15 p.m., Diehl Hall - AHC Learning Commons
To register: https://www.umn.edu/login?desturl=http://www.biomed.lib.umn.edu/x500/login/?redirect=workshops/fulltext4

This class will cover the various ways that University students, staff, and faculty can access electronic full-text resources such as ebooks and full text articles from electronic journals via MNCAT (the University online catalog) and various University subscribed databases.
Sponsor: Health Sciences Libraries

Tips and Tricks for Finding Property Data
Monday, October 1, 2:30 p.m., 310 Walter Library
To register: http://www.lib.umn.edu/registration/#eventidXX203

Learn about the wide range of electronic and print resources for property data in the physical sciences and engineering.
Sponsor: University Libraries

RefWorks
Wednesday, October 3, 1 – 2:30 p.m., Diehl Hall - Library 2nd Floor Computing
To register: https://www.umn.edu/login?desturl=http://www.biomed.lib.umn.edu/x500/login/?redirect=workshops/refworks1

RefWorks is a Web-based bibliographic management service that allows students, faculty, and staff at the University of Minnesota - Twin Cities to create personal databases of references. RefWorks allows you to import directly from databases and formats papers in various citation styles.
Sponsor: University Libraries

Create Your Poster in PowerPoint
Thursday, October 4, 3:30 – 4:15 p.m., Magrath 81 (St. Paul) &
Monday, October 8, 2:30 – 3:15 p.m., 310 Walter Library
To register: http://www.lib.umn.edu/registration/#eventidXX148

Getting ready to do a poster at an upcoming conference? Learn pointers about using PowerPoint to create the poster as one giant slide, and then learn how to send it to a large-scale printer.
Sponsor: University Libraries

RefWorks Basics
Tuesday, October 9, 3:15 – 4:30 p.m., Magrath 81 (St. Paul),
Tuesday, October 23, 2:30 – 3:45 p.m., Magrath 81 (St. Paul) &
Wednesday, October 24, 11:15 – 12:15 p.m., 310 Walter
To register: http://www.lib.umn.edu/registration/#eventidXX75

Prepare for your upcoming papers and research by learning about RefWorks, the Web-based citation manager that is freely available to all U of M faculty, students and staff. RefWorks allows you to import references from most databases, keep track of your references in a searchable database and then add those references to your papers with RefWorks doing the work of formatting your references in the appropriate style.
Sponsor: University Libraries

Educational Technologists Forum Meeting
Wednesday, October 10, 3 – 4:30 p.m., 402 Walter Library
To register: Just show up!

Campus educational technology designers and developers will socialize and discuss "Capture the Classroom: Podcasting, Vodcasting, and Streaming Video."
Sponsors: Digital Media Center, Office of Information Technology and the College of Education & Human Development

"Media Literacy and New Media" TEL Seminar
Wednesday, October 10, 12 – 1:30 p.m., 402 Walter Library
To register: Just show up in person or register at http://dmc.umn.edu/tel-seminar-breeze.shtml to attend online as a virtual participant.

We are challenged to cope with an increasingly complex and rapidly evolving media environment. Panelists will discuss media literacy in higher education, or the skills and knowledge students need to actively engage emerging new media forms.
Sponsor: The series is sponsored by the Office of Information Technology and organized by Academic and Distributed Computing Services and the Digital Media Center. Sessions are sponsored by the Office of the Senior Vice President for Academic Affairs and Provost and panelists' units.

Literature Search Techniques and RefWorks
Wednesday, October 10, 1:30 – 3 p.m., AHC Learning Commons
To register: https://www.umn.edu/login?desturl=http://www.biomed.lib.umn.edu/x500/login/?redirect=workshops/litsearchtech

Is doing research for your paper or literature review leaving you frustrated? We will show you a few simple strategies to make your literature searches focused and sophisticated. We'll give you tips on the research process, and show you how to use RefWorks to organize your references and automatically create your bibliography. There will be time at the end of the class for you to work on your own project.
Sponsor: Health Sciences Libraries

Coaching Graduate Writing
Friday, October 12, 12 – 1:30 p.m., 113 Vincent
To register: online at http://writing.umn.edu/register.htm or by calling 612.626.7579

In this panel discussion, we will discuss productive and positive strategies for coaching graduate writers, particularly those working on theses and dissertations.
Sponsor: Center for Writing

Beilstein Basics
Tuesday, October 16, 4:30 p.m., 310 Walter
To register: http://www.lib.umn.edu/registration/#eventidXX103

Beilstein offers deep coverage of the literature of organic chemistry and the ability to search structures, properties, and reactions. This workshop offers an introduction to fact and structure searching in Beilstein with hands-on time at the end of the class.
Sponsor: University Libraries

Grant Funding: Search Tools and Resources
Wednesday, October 17, 3 p.m., 310 Walter Library
To register: http://www.lib.umn.edu/registration/#eventidXX18

Learn how to use IRIS, SPIN, Community of Science and the Foundation Directory to search for grant opportunities. E-mail updates on specific subjects will also be covered, as well as how to find internal U of M funding sources.
Sponsor: University Libraries and the Office of the Vice-President for Research

"It's All About Efficiency" – Lunch and Conversation for TAs Who Teach with Writing
Friday, October 19, 12 – 1:30 p.m., 219 Appleby
To register: online at http://writing.umn.edu/register.htm or by calling 612.626.7579

In this roundtable discussion for teaching assistants, three experienced TAs will facilitate a discussion about balancing the roles of graduate student and teacher.
Sponsor: Center for Writing

Commenting and Responding to Student Writing
Wednesday, October 24, 2:30 – 4:30 p.m., 135 Nicholson (fireplace room)
To register: online at http://writing.umn.edu/register.htm or by calling 612.626.7579

In this interactive workshop, we'll discuss (and practice) ways to read student drafts, articulate meaningful comments, and manage the paper-load.
Sponsor: Center for Writing

November

PubMed
Thursday, November 1, 10 – 11 a.m., AHC Learning Commons
To register: https://www.umn.edu/login?desturl=http://www.biomed.lib.umn.edu/x500/login/?redirect=workshops/pubmed2

Learn the basics of searching MEDLINE, the premier health sciences citation database, through PubMed, using Medical Subject Headings (MeSH) and other tools.
Sponsor: Health Sciences Libraries

Extreme Googling: Tips and Tricks for Expert Searching
Friday, November 2, 12 – 1 p.m., Library 2nd Floor Computing
To register: https://www.umn.edu/login?desturl=http://www.biomed.lib.umn.edu/x500/login/?redirect=workshops/extremegoogling1

Learn how to exploit Google to your advantage! Our advanced tips and tricks will help you get the most out of your Google searching. We will also show you how to use Google to find scholarly articles, patents, ebooks, government documents, maps, and more.
Sponsor: Health Sciences Libraries

Ovid MEDLINE
Tuesday, November 6, 12 – 1 p.m., AHC Learning Commons
To register: https://www.umn.edu/login?desturl=http://www.biomed.lib.umn.edu/x500/login/?redirect=ovidmedline2

Learn the basics of health sciences database searching through the National Library of Medicine's MEDLINE via Ovid using Medical Subject Headings (MeSH) and other tools.
Sponsor: Health Sciences Libraries

"The U of M Learning Technology Platform: Integrating Online Tools to Support Hybrid Education" TEL Seminar
Wednesday, November 7, 12 – 1:30 p.m., 155 Peters Hall (St. Paul)
To register: Just show up in person or register at http://dmc.umn.edu/tel-seminar-breeze.shtml to attend online as a virtual participant.

The University has developed an integrated "learning technology platform" to provide personalized access to a suite of online teaching and learning tools. Panelists will discuss how this new approach better supports academic collaboration, research, instructional content development, and learner assessment.
Sponsor: The series is sponsored by the Office of Information Technology and organized by Academic and Distributed Computing Services and the Digital Media Center. Sessions are sponsored by the Office of the Senior Vice President for Academic Affairs and Provost and panelists' units.

Grading Student Writing
Wednesday, November 7, 12 – 1:30 p.m., 155 Peters Hall (St. Paul)
Friday, November 9, 12 – 1:30 p.m., 219 Appleby
To register: online at http://writing.umn.edu/register.htm or by calling 612.626.7579

In this panel discussion, we'll discuss time-efficient systems for grading student writing (holistic grading, rubrics, portfolios) and share strategies for this important, but challenging, teaching activity.
Sponsor: Center for Writing

Twin Cities Campus

Create Your Poster in PowerPoint
Tuesday, November 13, 3:45 – 4:30 p.m., Magrath 81 (St. Paul)
To register: http://www.lib.umn.edu/registration/#eventidXX148

Getting ready to do a poster at an upcoming conference? Learn pointers about using PowerPoint to create the poster as one giant slide, and then learn how to send it to a large-scale printer.
Sponsor: University Libraries

Grant Funding: Search Tools and Resources
Tuesday, November 13, 2 p.m., 81 Magrath Library (St. Paul)
To register: http://www.lib.umn.edu/registration/#eventidXX18 &
Tuesday, November 13, 10 – 11:30 a.m., Diehl Hall - Library 2nd Floor Computing Area
To register: https://www.umn.edu/login?desturl=http://www.biomed.lib.umn.edu/x500/login/?redirect=workshops/grantfunding3

Learn how to use IRIS, SPIN, Community of Science, and the Foundation Directory to search for grant opportunities. E-mail updates on specific subjects will also be covered, as well as how to find internal U of M funding sources.
Sponsor: University Libraries and the Office of the Vice-President for Research

RefWorks Basics
Wednesday, November 14, 2:30 – 3:45 p.m., Magrath 81 (St. Paul)
To register: http://www.lib.umn.edu/registration/#eventidXX75

Prepare for your upcoming papers and research by learning about RefWorks, the Web-based citation manager that is freely available to all U of M faculty, students, and staff. RefWorks allows you to import references from most databases, keep track of your references in a searchable database, and then add those references to your papers with RefWorks doing the work of formatting your references in the appropriate style.
Sponsor: University Libraries

Extreme Googling: Productivity Tools for Your Online Life
Friday, November 16, 12 – 1 p.m., AHC Learning Commons
To register: https://www.umn.edu/login?desturl=http://www.biomed.lib.umn.edu/x500/login/?redirect=workshops/googlelife

We will introduce to you free, online tools from Google to help you work collaboratively, stay current, get organized, and be more productive in your personal and professional online lives. Tools covered will include: Google Docs & Spreadsheets, iGoogle, Google Calendar, Google Maps, Google Reader, and more.
Sponsor: Health Sciences Libraries

RefWorks
Thursday, November 29, 10 – 11:30 a.m., AHC Learning Commons
To register: https://www.umn.edu/login?desturl=http://www.biomed.lib.umn.edu/x500/login/?redirect=workshops/refworks4

RefWorks is a Web-based bibliographic management service that allows students, faculty, and staff at the University of Minnesota - Twin Cities to create personal databases of references. RefWorks allows you to import directly from databases and formats papers in various citation styles.
Sponsor: University Libraries

December

"Learning Outcomes, Assessment, and Technology" TEL Seminar
Wednesday, December 5, 12 – 1:30 p.m., 402 Walter Library
To register: Just show up in person or register at http://dmc.umn.edu/tel-seminar-breeze.shtml to attend online as a virtual participant.

Dr. Arlene Carney, vice provost for faculty and academic affairs, and Dr. Ann Hill Duin, associate vice president and deputy CIO, will moderate a discussion among faculty members engaged in exploring the intersection of learning outcomes, assessment, and technology.
Sponsor: The series is sponsored by the Office of Information Technology and organized by Academic and Distributed Computing Services and the Digital Media Center. This session is cosponsored by the Provost's Council for Enhancing Student Learning.

Educational Technologists Forum Meeting
Wednesday, December 12, 3 – 4:30 p.m., 402 Walter Library
To register: Just show up!

Campus educational technology designers and developers will socialize and discuss "Best Practices in Video for Teaching and Learning."
Sponsors: Digital Media Center, Office of Information Technology, and the College of Education & Human Development

January

Deadline for submission of Morse Graduate/Professional Dossiers
January 24, 2008

Submit to the Office of the Senior Vice President and Provost
Information: Karen Zentner Bacig, kbacig@umn.edu

DMC Faculty Fellowship Program
CFP available in mid-January; applications due in mid-February
Date and time to be announced
To register: http://dmc.umn.edu/fellowship/

Faculty and P&A instructors who aspire to teaching excellence and leadership explore technology, learning, and teaching issues; share project and research outcomes; develop educational technology leadership and scholarship skills; and attend biweekly seminars and additional events over an academic year.
Sponsors: Sponsored by the Office of Information Technology (OIT) and managed by the Digital Media Center, OIT

TEL Grant Program
CFP available in mid-January; proposals due in mid-February
Date and time to be announced
To register: http://dmc.umn.edu/grants/

Full-time instructors developing a substantial educational technology project develop, implement, and evaluate the project; share related scholarship; receive significant financial support; and get project development support by attending several meetings and events over a year.
Sponsors: Sponsored by the Office of the Senior Vice President for Academic Affairs and Provost and the Office of Information Technology (OIT); administered by the TEL Council and managed by Academic and Distributed Computing Services, OIT, and the Digital Media Center, OIT

Early Career Faculty Learning Community – Spring 2008
Date, time, and location to be announced
To register: http://www1.umn.edu/ohr/teachlearn/faculty/early/semester/index.html

Faculty in this program expand their current knowledge and skills in a particular area of teaching. The theme for Spring 2008 is Improving Lecture-based Teaching.
Sponsor: Center for Teaching and Learning

Early Career Classroom Observation Program
Date, time, and location to be announced
To register: http://www1.umn.edu/ohr/teachlearn/faculty/early/observation/index.html

Explore what makes great college teaching by observing three expert teachers over the course of one semester. Each observation is followed by an informal discussion about teaching and learning with the expert during lunch at the Campus Club.
Sponsor: Center for Teaching and Learning

Preparing Future Faculty Retreat
Date, time, and location to be announced
To register: http://www1.umn.edu/ohr/teachlearn/pff/retreat/index.html

The Preparing Future Faculty retreat brings together graduate students and postdoctoral candidates from across the University to discuss teaching, learning, and the faculty role at various institution types.
Sponsor: Center for Teaching and Learning

www.transform.umn.edu

Teaching and Learning Events
Fall 2007

Bill Russell at USF

Hoops & Hurdles:

The Unlikely Story of How I Learned How I Learn

by **Edward M. Griffin**

Edward M. Griffin

Editor's Note

The Center for Teaching and Learning sponsors the "Making a Meaning of a Life in Teaching" program in which cohorts of faculty gather to reflect upon their teaching careers. The following excerpt is from Professor Edward M. Griffin's "Hoops & Hurdles: The Unlikely Story of How I Learned How I Learn."

Synopsis

My "Making Meaning of a Life in Teaching" memoir is a story about my freshman year long ago at the University of San Francisco, where I played for two coaches, Ross Giudice (frosh basketball) and Bill Magner (track), whose teaching methods nicely meshed with my own learning style and forced me to think about how I learn. The great basketball star Bill Russell, a USF senior that year, has a major role in my narrative. After USF won its second consecutive national basketball championship that March, Russell and I joined the track team. I relate how, with very little training, he nearly broke the world record in the high jump, and I improved my own marks under Magner's teaching. Russell later became a legendary professional player and coach; I became a professor at the U. One September some years later, I heard him speak here at orientation for first-year students. During his talk, he mentioned that because he is tall and Black, people often ask him in airports if he is a basketball player. He routinely corrects them, instead calling himself "a man who plays basketball." Defining him merely by his occupation, he said, diminishes his humanity as an African American man. I was struck by the correlation between Russell's position and Emerson's formulation in "The American Scholar," a classic essay I often teach. For Emerson, a proper society defines the scholar as "Man Thinking," not merely "a thinker"; similarly, a farmer should be "Man on the Farm." After the talk, I went backstage at Northrop to chat with him, and as we were leaving the building, those phrases surfaced again during the event recounted in the following excerpt.

I walked beside Russell as we were steered to the back entrance of Northrop Auditorium. Stepping through the big doors there, I saw a dark sedan parked at the curb with its engine idling and its driver standing near the rear bumper. A few feet away, I noticed a blond young man, husky, square-jawed, dressed in khakis and a sports shirt and standing on the sidewalk. As we started down the concrete stairs toward the car, he stepped forward. In his hand I saw a copy of Russell's as-told-to autobiography, *Go Up for Glory.*

"Mr. Russell," he said, "I have your book. Would you autograph it?"

Russell, two steps above him, looked down and said, "I'm sorry. I don't sign autographs."

I saw the young man instinctively draw back, and I felt a swift twinge of embarrassment and pain for him, flashing to a similar moment in my own life when, at age 11, I had stayed around for two hours after a Pirates game at Forbes Field, hoping to get the autograph of Dodger manager Leo Durocher. When he finally appeared, he said, "Get the hell out of here, kid." You remember moments like that. They sting.

But only an instant passed before Russell stepped down to the sidewalk, reached out his enormous hand, and said, "But I'd be proud to shake your hand."

Startled, the young man awkwardly shifted the book to his left hand and grasped Russell's right hand with his own. From behind him, the public relations man said, "Mr. Russell. We really *must* be on our way."

Russ gave his left shoulder a quarter turn. He glanced at the public relations man with a look I had seen him give referees. "I'm busy now," he said over his shoulder. "This man and I are going to take a walk."

Then he pivoted to his left and the young man followed. They started walking together down the sidewalk toward the corner, a half-block away. Before they left my earshot, I heard Russell ask, "Can you tell me something about yourself?"

I'm not sure how long they stood at the street corner and chatted. I would guess about four minutes. I know that the public relations man went to the side of the sedan and stood there, drumming his fingers on the roof with one hand and occasionally glancing at his watch on the other wrist. The public relations woman was pacing around on the Northrop steps like someone with a full bladder. Eventually, the two men turned and walked back to our group. They shook hands again, and the young man walked up the street in the opposite direction. The driver jumped into the car. The public relations fellow swung open the passenger-side door. Russell went to the door, looked up the stairs, caught my eye, nodded, and then folded himself into the front seat. The public relations man and woman clambered into the rear seats. The driver drove to the corner, turned left, and headed for downtown Minneapolis and the parade of interviews that Russell would give there for the rest of the day. I walked slowly down the Northrop steps and turned toward Lind Hall.

On Northrop Mall, I found a bench and sat for a few minutes, looking out at the grassy quadrangle and trying to interpret the little drama I had just experienced. I knew I had just seen our honored guest receive an unexpected challenge to what he had said inside the auditorium a few minutes earlier. He had spoken of the riddle he tells bystanders in the airport, illustrating the difference between the mere "basketball player" and "the man who plays basketball." Outside the auditorium, only a few minutes later, one of those very students approached him for his autograph – and at that instant Russell made a choice. It reminded me of something out of a Henry James novel, turning as it did on a gesture withheld and a gesture made. Bill Russell could have made the mechanical gesture, putting his hand to the pen, scribbling his name, and driving away. Many superstars would have done just that, never needing even to look at the face of the person standing before him. But doing so, I thought, would have contradicted what he had just said to the Minnesota students. Russell, the man who plays basketball, would have reduced himself to the mere basketball player. Even more: he would have allowed himself to become a mere autograph, not a man. How had Emerson put it? "The priest becomes a form; the attorney, a statute-book; the mechanic, a machine; the sailor, a rope of a ship." Moreover, he would have also defined the young man merely as a label, as Autograph-Hound. So, quite deliberately, I thought, he firmly rejected the mechanical gesture – "I don't sign autographs"– substituting for it a superior gesture, a living one, the human gesture. "But I'd be proud to shake your hand." Not pen to paper but flesh to flesh, man to man. The human gesture demands more, asks for that extra step of reaching out, even making yourself vulnerable. And it delivers more; it acknowledges that the person across from you is not just "a student" but Man Studying.

Yet it seemed to me that he also took the gesture to a deeper level of signification. "I'm busy now. This man and I are going to take a walk." Taking the walk, talking together apart from the crowd, closed the circuit, I thought, making the connection, establishing a kind of electricity between two people that neither writing your name nor even shaking your hand can truly accomplish. Four minutes of conversation can fix the moment for a lifetime. It seemed

(continued on page 6)

LEARNING IN THE PIT *(continued from page 1)*

likely helped students learn economics, we wanted to measure the effect of the ARS on students when coupled with the power of the economic experiment framework. The remainder of this article is the story of what we tried and how we evaluated it. We view this report as provisional, and, as you'll see from our data and analysis, we're refining our methods in preparation for the next class.

The "Economic Experiments"

For our pilot in the Fall of 2006, we conducted two "experiments" in a microeconomic principles class which had about 110 students. They took place during a 50-minute class session with 34-36 students in each of 3 sections. Both experiments involved pit market trading, as documented in the literature (Holt 1996; Ruffle 2003; DeYoung 1993). Picture a loud, seemingly chaotic scene in which buyers and sellers haggle over commodity prices in a designated trading area in the center of the classroom.

The general procedure for each of the two experiments is the following. Upon entering the classroom at the beginning of a session, each student sits on one of the two sides of the classroom, designated for buyers and sellers, respectively. A one-page Instruction Sheet is handed out, explaining the basic rules under which trading will occur. As the TAs are distributing the seller "cost cards" and buyer "value cards" that set limits on the prices at which students will exchange during the barter, we remind the students that in no way should they reveal their reservation prices to other traders. With their wireless transmitters, the students then enter their reservation prices into the ARS to answer a question. Eventually, they will answer a total of five questions over three rounds of trading. This is the data the students will analyze later in the class.

To begin the first round, the instructor signals the students to enter the trading pit (with buyers staying on the buyer side and sellers on the seller side), carrying with them their wireless transmitters and cost/value cards. The instructor opens the market and starts the clock. When a buyer and a seller agree upon a price, they proceed to the recording booth for verification, and they are told to enter their transaction price into the ARS as the answer to the next question. The procedure is repeated for the second and third round, and traders enter their transactions prices as the answers to the subsequent questions in the ARS.

With all three rounds completed, the recorder manipulates the student data generated through the ARS, creates the necessary graphs and tables, and inserts them into the instructor's PowerPoint presentation file.

(continued on the back page)

J. D. Walker

HOOPS AND HURDLES *(continued from page 5)*

right to me, consistent, a form of integrity with no conflict between what one professes and what one actually, habitually, does.

Of course, I was thinking like a professor. Maybe the young man would have much preferred Bill Russell's signature on his book to his handshake and four minutes of genuine conversation with him. Maybe he didn't realize the significance of what had happened until he was forty and had already donated the book to Goodwill. Maybe he never realized it at all, for it was not there for him. There's no way for me to know. Nor have I any idea how Russell interpreted our little curbside drama. I choose to read it symbolically because that is how I saw it and how I remember it. At this stage of my life, I suppose, I am free to construct from it whatever meaning I choose. I'm even free, for the sake of the story, to commit the sin of stereotyping those publicity agents by what they did instead of who they truly are. (In their case, since they drove away, I'll call it a venial sin.) But when I left my seat on the Mall and crossed over to Church Street, I felt that I had gained that morning a genuine understanding of what it meant to be *Man Thinking* as well as *Man Playing Basketball*. A few weeks earlier, I had wondered if I could ever recognize it when I saw it, and I believed that today I had recognized it. I knew that Mr. Russell had given me a real-life example that I could use as a teacher, a story I could tell to illustrate an important point. I have done so every fall for three decades.

Yet Bill Russell and I are getting along in years. I've heard that he's retired and living on an island near Seattle. I catch sight of him every so often when the television cameras pan the crowd at a national championship game or at some awards presentation. He still looks long and trim, though his scraggly white beard ages him more than it should. In 2005 and 2006, the press has paid some attention to the 50th anniversary of the great USF teams, so I have read some quotes from him in the write-ups. I'm always glad to see him and read about him. I've even written a few pages about him – if only for myself and a few friends.

Still, I wonder if I should continue to use this anecdote when I teach Emerson. For my students at the University of Minnesota, Bill Russell's name is no longer a household word. Most members of the current first-year class at Minnesota were born only eighteen years ago, and they retain only faint memories of anything that happened before they were seven or eight. That gives them a ten-year frame of reference, most of it in the twenty-first century. If they have ever heard anything about Bill Russell, they heard it from their grandpa. I'm fifty years older than they are – pretty close to the age of their grandfathers. Do they hear my story about Bill Russell the way they hear another of gramp's yarns about some guy he knew growing up in the old neighborhood: tune out but pretend to listen? Can it still have any effect?

How does a man fifty years older than his students reach them, move them, engage them to learn and excite them to study when his frame of reference is so different from theirs? How does he find some commonality between himself and them? I think about these challenges all the time. I've had profs, and a few colleagues, who would teach the same stuff the same way on the same day and at the same hour every semester. I don't do that. I revise everything, and each year I completely reorganize one course that I have taught in the past.

So, to be consistent with my urge to stay current, is it time to drop the Russell anecdote from my discussion of Emerson? I fret about that, but I think I'll keep this one. Pedagogically, it's sound. It adds character, plot, setting, and drama to an abstract idea. Student evaluations over the years suggest that they do remember it and understand it. I don't think the name of the player is absolutely crucial to making the story work, though I could never bring myself to substitute the name of a current star for *Man Playing Basketball.* Can one even imagine Kobe Bryant, Stephon Marbury, or Allen Iverson in Bill Russell's role? Not a chance.

Moreover, I realize now that the process of writing it out for the first time has changed it. It's not the same, tired story trotted out with the dust blown off the covers. Putting it on paper has made it fresh and alive for me again. If so, perhaps keeping it in my repertoire doesn't truly violate my principle of updating, discarding the outdated and connecting what the students know to what they don't know. I recall that our friend Emerson taught that "a foolish consistency is the hobgoblin of little minds." I suspect that discarding the story would constitute a foolish consistency. Finally, while I ruminate on the challenges facing the older teacher, I have to remind myself that experience counts. The years have made me a very good teacher. "Trust thyself; every heart vibrates to that iron string," wrote Emerson, and I think I can trust myself to make the story work, to keep it lively and effective, to find the best spot, the right moment, to use it, and to know the right way to perform it in the classroom.

Like the other one, I carried this story around with me for a long time before writing it down. I still like it.

Yes, I believe I'll tell it again, somewhere, sometime.

Edward M. Griffin is a Morse-Alumni Distinguished Teaching Professor in the Department of English on the Twin Cities campus. The full essay can be found at: **http://www1.umn.edu/ohr/img/assets/18007/griffin2.pdf.**
Bill Russell photo courtesy University of San Francisco Archives

Spotlight Shines on Peer Instruction at 2007 Academy Conference

By Bill Rozaitis

Long before peer instruction and cooperative learning became widely known in higher education, University of Minnesota faculty member Karl A. Smith was experimenting with and developing these techniques. "The University's commitment to cooperative and active learning stretches back decades," according to Smith, a Morse-Alumni Distinguished Teaching Professor and professor of Civil Engineering. His efforts in the late 1970s and early 1980s, along with those of others at the university, made Minnesota a national leader in the use of cooperative learning in large classes.

With this history, it was fitting that peer instruction should be the focus of the keynote address at the April 23, 2007 "Enhancing Student Learning" conference. The address, titled "Confessions of a Converted Lecturer," was delivered by Dr. Eric Mazur, professor of physics at Harvard University. Dr. Mazur shared his confessions with a large and enthusiastic audience, speaking about his use of peer instruction and the benefits such an approach has for teaching basic physics concepts to introductory science and engineering students.

Like most professors, Dr. Mazur began his career as a lecturer, delivering well organized, content-rich presentations to his students. He was satisfied with his teaching; his evaluations were strong and his students performed well on what he considered to be difficult problems. It wasn't until Mazur came across a series of articles by Ibrahim Abou Halloun and David Hestenes in the mid-1980s that he began to question his approach.

Halloun and Hestenes showed that students entered physics courses with "common sense" misconceptions that standard instruction did little or nothing to correct. Mazur found this to be true in his own students: they were able to solve problems using cookie cutter methods but unable to explain the concepts underlying the problems they solved. Things began to make sense to Mazur. Students could do well on conventional problems by memorizing algorithms and applying generic problem solving strategies to new contexts. Plug and chug. What was missing was a solid understanding of the underlying physics.

Mazur describes this realization as "eye opening," an experience that changed his approach to teaching introductory physics. The result was peer instruction, a method that leverages student interaction during lectures to focus attention on underlying concepts.

Mazur's lectures now consist of a number of small presentations on key points followed by a check on the student's understanding of the subject that he calls a "ConcepTest." Students first answer the question individually and then turn to partners to discuss it, striving to explain to their peers why their answer is correct. Often Mazur has students submit a revised answer to the concept question after their discussion, and he then closes the exercise with an explanation of the correct answer. The activity typically takes between five and six minutes to complete, during which students are animated and engaged.

Mazur has collected years of data on the peer instruction approach, and the results are striking. He has found improvement in students' understanding of underlying concepts without sacrificing their ability to solve problems. An added benefit for Mazur is that peer instruction makes teaching easier and more rewarding.

Professor Smith believes the peer instructional approach is also a natural one for engineering education because it models the way engineers work in practice. Cooperative learning maximizes student achievement, particularly with conceptually difficult material, while encouraging active learning and the group processing skills necessary for success in both the university and the workplace.

Professor Smith uses cooperative learning in all his classes, but a first-year course taught for many years titled "How To Model It: Building Models To Solve Engineering Problems" serves as an illustration of the process he follows.

The class enrolled 120 students who were randomly divided into groups of three. To begin the exercise, Smith introduced a challenge that is complex and open ended, a real world situation that students had to solve. Groups formulated the problem with Smith sampling their progress as they worked. Students recorded their work on overhead transparencies, and randomly selected students were invited to present their group's model and solution to the class. Discussion followed, alternating between whole class and small group. Groups processed their effectiveness in working together as a team before preparing and submitting a homework assignment report.

Smith credits a 1986 publication titled *Strategies for Active Teaching and Learning in University Classrooms* edited by Steven Schomberg and published by the University's College of Continuing Education as the resource that featured his work and that of colleagues as pioneers with the technique more than twenty years ago. Since then, he has authored several articles and books on the approach to make others aware of the benefits of cooperative learning.

Bill Rozaitis is an education specialist at the Center for Teaching and Learning.

SoTL UNIVERSE *(continued from page 3)*

So I did that experiment the first year. And, surprise … just as you might guess, the people who actively participated did better than the people who didn't participate! Now, there were outliers. There were some participants who did poorly, and there were some non-participants who did very well.

But the data were hugely clear. And it was a cohort where I could really see the participators participating. They took the challenge. They said, "Dr. Schiff, can we give a 5-minute presentation at the beginning of class on x?" They were figuring out ways to engage with the material and with their peers. It was a great year. The people who were there really cared. I loved being in that classroom.

So the next year I presented those data on the first day of class, and I told students they would have a choice. And virtually everybody picked to be a participator. But they actually didn't really participate. So that year the data didn't look so good. It turns out if you say you are going to participate and you don't, there is no effect. There is no positive effect for choosing the option if you don't actually do the work.

D: Would you say that all of your SoTL experiments stem from this one reluctant student?

L: No. I was teaching GRAD 8101 (Preparing Future Faculty), and I learned more from teaching that class than from anything else. And I thought, hmm, grading contracts ... I could say, you want to participate or you do not want to participate. Then I got that great data where the participators did better and it was like, cool, I could actually do these experiments and learn something about what helps students learn better.

Here's another experiment. Students in my class have taken a large number of scientific prerequisites, but I know that most of that stuff went in one ear and out the other. So I give them, on the second day of class, a quiz that tests prerequisite knowledge. I kind of know where they are. Then this year it occurred to me to give that test again at the end. And miraculously what was a broad scatter plot at the beginning of the semester was less scattered at the end. I didn't suck information out of their brains! The fact that people did better said to me that I was contextualizing a lot of the information that they had in these other courses. That made me happy.

D: So you're doing these experiments in the classroom. You feel that you're learning stuff about the classroom, but you're not publishing SoTL. Do you think that you ever will publish?

L: I would like to. Because I've reached a stage where I don't have to worry about tenure any more. And maybe I can get some help. I think if we could partner with people who do SoTL and publish SoTL that would be really helpful. A sort of mentorship. Because I don't even know what it would take to put together a SoTL piece. How big does it have to be? What's the scope of a SoTL piece? I don't know.

"So I need to step over — to use a scientific phrase — the activation energy barrier. To decide to get out of your chair is harder than the movement once you're actually out of the chair and moving."

D: If you were to do a SoTL experiment, if you were to conduct a study, what would you think about *Transform* shadowing you and seeing the whole process of doing an experiment? Going from beginning of an experiment to the end.

L: Sure. That's the help that I need because I don't know how to do this. I do it because that's how I get my jollies.

Yeah, I think it would be fun to have *Transform* shadow me. It might lower my activation energy barrier.

Leslie A. Schiff is Morse-Alumni Distinguished Teaching Professor in the Department of Microbiology and currently chairs the Council on Liberal Education. David Z. Wehner is an assistant professor of English at Mount St. Mary's University.

A too short history *of the scholarship of teaching and learning*

By Paul Baepler

In longer histories of the Scholarship of Teaching and Learning (SoTL), we would need to trace its roots to at least mid-century if not earlier. Most, though, would agree that what we currently recognize as a SoTL movement stemmed from the foundational work in Ernest Boyer's *Scholarship Reconsidered* (1990) and Lee Shulman's essays in 1987 and 1999.

In the mid-1980s, American higher education had come under political attack (again) and was accused of, among other things, privileging its research mission over its teaching charge. Boyer attempted to address this public critique by fundamentally reconceiving the traditional tripartite model of the university that includes research, teaching, and service. He focused on four overlapping types of scholarship: discovery, integration, application, and teaching. In 1999, Lee Shulman, in his essay "Taking Teaching Seriously," added "learning" to the scholarship of teaching, and the now familiar acronym "SoTL" was born.

When read quickly, it all sounds simple and complete, but of course it's not. A loud and complicated debate arose concerning what exactly constituted "faculty work." How could scholarship on teaching and learning be properly vetted and documented? Would this work count toward promotion and tenure in the same way disciplinary research was credited? What properly defines SoTL and sets it apart from scholarly teaching? (We'll look at some of these problems in future issues.)

The Carnegie Foundation and the American Association for Higher Education (until its recent demise), both of which had been responsible for starting this debate, funded several initiatives to promote SoTL nationally. The Carnegie Academy for the Scholarship of Teaching and Learning (CASTL), the AAHE Summer Academy, and several smaller efforts took up the initial call by providing training, expertise, and incentives to develop new kinds of scholarly efforts. In 2002, the International Society for the Scholarship of Teaching and Learning emerged and it held its first conference in 2004. In 2007, the first "SoTL Commons" conference will be held at Georgia Southern University. Closer to home in Northfield, St. Olaf and Carleton colleges have jointly sponsored a biennial SoTL conference for liberal arts colleges. Dozens of refereed journals now publish SoTL either in disciplinary or multidisciplinary formats and several books on SoTL have recently hit the shelves.

All of this begs the question, why is SoTL emerging now? That's also a too complicated question for a too short history. But I can gesture to reasons. The Carnegie Foundation has provided solid leadership in this area for over 25 years, and they've made a strategic difference. There is also renewed public pressure for accountability in higher education, and this typically means an emphasis on the assessment of student learning. And finally — although there are undoubtedly further reasons — there have been great inroads made into brain research and how people learn. All of these influences together have made it a fertile ground for SoTL to flourish.

There are far more complex and nuanced histories of the rise of SoTL, and I list some of them below as well as some other key references. Boyer and Shulman are of course obvious starting points, but more recent work by Weimer, McKinney, and Huber might bring you up to speed more quickly.

FURTHER READING

Bender, E. T. (2005). CASTLs in the air. *Change.* Sept/Oct. 40-49.

Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate.* San Francisco, CA: Jossey-Bass.

Glassick, C. E., Huber, M.T., & Maeroff, G. I. (1997). *Scholarship assessed: Evaluation of the professoriate.* San Francisco, CA: Jossey-Bass.

Huber, M. T. (2004). *Balancing acts: The scholarship of teaching and learning in academic careers.* Washington, DC: American Association for Higher Education.

McKinney, K. (2007). *Enhancing learning through the scholarship of teaching and learning: The challenges and joys of juggling.* Boston: Anker.

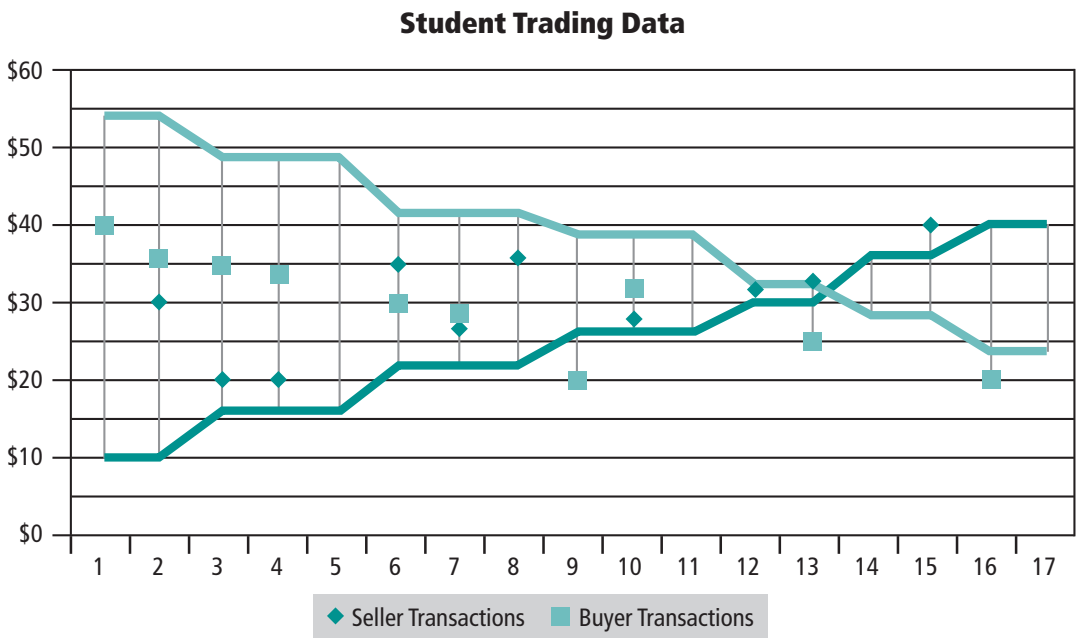
Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 36,* 1-22.

Shulman, L. S. (1999). Taking teaching seriously. *Change. 31*(4), 11-17.

Weimer, M. E. (2006). *Enhancing scholarly work on teaching and learning: Professional literature that makes a difference.* San Francisco, CA: Jossey-Bass.

This step takes about five minutes, giving the instructor just enough time to prepare the students for the post-experiment discussion.

The instructor is then able to use the graphs and calculations to illuminate various points pertaining to the topic at hand. We show, for instance, which buyers and sellers did the best job of maximizing their surplus in each round of trading, how student trades approximated the predictions of theory more closely in each successive round of trading, the effects of price ceilings and taxes, etc. In other words, the students can begin to see the degree to which their own behavior conformed to the predictions of economic theory.



This chart shows student transaction prices for one round of trading. The points represent individual students, either buyers or sellers. If you read across horizontally, you can see who traded with whom. For instance, Buyer 1 traded with Seller 15 at $40.

In the interest of telling our story efficiently, we have left out a few bumps in the road. For instance, the data display procedure casually described above was not without problems. During the first experiment, the ARS generated unexpected extraneous data which caused the Excel spreadsheets not to function properly, resulting in faulty data displays. We also learned that cleaning up the text data could be a demanding operation because it was conducted in real time, in front of a classroom of students, and that practice was required to carry out this task smoothly and quickly. Finally, both stages of the procedures required significant investments of time by the experimenters. We expect, however, that this expenditure of time will be reduced significantly in future experiments as we become more proficient.

Evaluation and Results

In addition to this course with the pit market experiments, we also taught a second microeconomic principles class similar to the first one: about the same size (110 students), during the same semester (fall 2006), in the same lecture hall, and nearly at the same time (back-to-back). In evaluating the effect on learning outcomes of the experiments, this second class served as the control group; students in this group received standard lecture-style lessons (augmented with whiteboard drawings and PowerPoint slides) on the same topics as the pit market experiments.

Three performance measures were adopted for assessing learning impacts. The first measure is the percentage change between the Test of Understanding of College Economics (TUCE) test scores administered at the beginning and the end of the semester, aiming at determining the effect of the treatment on the overall economics literacy of the students. The TUCE is a well-established exam that offers a reliable and valid assessment of principles of economics courses and a norming measure across a large national sample of economics students. Our students took a 20-question subset of the TUCE and were granted a small bonus if they scored at reasonable levels.

The second measure is the score on five specific multiple-choice questions in the final examination, designed to gauge students' understanding of the issues related to consumer and producer taxes addressed in the second pit market experiment.

The third measure is the semester score from the course, assessing the effect of the treatment on overall learning outcomes. (For further information on how we controlled for the heterogeneity of our student population, see the *Transform* Web site.)

Preliminary findings suggest some positive impacts on learning outcomes of the experiments. Based on the three performance measures, attending experiments:

- increases the post-test TUCE scores by 3.5%,
- boosts the score of tax-specific questions in the final examination by 2.4%, and
- raises the overall semester score by 2.2% when compared to the control group.

However, the effects are not statistically significant at conventional confidence levels.

Durham, McKinnon, and Schulman (2007) examined the effects of a series of experiments not only on student learning, but also on student retention of knowledge and student attitudes, using student learning styles as a factor in the analysis. The findings indicated that some of the experiments improved retention and learning while others did not, leading the authors to hypothesize that for certain topics a lecture-and-discussion approach may be superior. The authors also found that learning style mediates the effects of classroom experiments. In our trials, we found evidence that seems congruent with Durham, McKinnon, and Schulman's findings. In particular, our data suggest that younger students with a lower GPA who spend more hours on studying for a course tend to benefit more from the experiments than students with a different set of characteristics.

The lack of strong statistical evidence on learning impacts could reflect the fact that there is in fact no difference in learning outcomes between the conventional lecture approach and the more active format which utilizes classroom experiments. Given the recent significant positive findings of Durham, McKinnon, and Schulman (2007) and Emerson and Taylor (2004), however, one should look harder for reasons leading to the insignificant result.

First, this result could well be due to a lack of proficiency on our part in implementing the experiments; this was our first attempt. Second, it is also possible that we have not used the appropriate performance measure for learning impact and/or have failed to control adequately the heterogeneity among student subjects. Third, it could be due to the fact that the number of experiments administered was insufficient, not giving students enough exposure to overcome the minimum threshold that is required for learning impacts.

Because our results were encouraging, and because our surveys indicated that students were engaged by the experiments, we believe the pilot was successful. It has also given us data that will drive a redesign of our project. Our future efforts, we believe, should be in the areas of perfecting our experiment procedure, refining our research methods on performance evaluation, and including additional in-class experiments into our teaching repertoire.

Our intention in this pilot study was to assess the feasibility and efficacy of using the ARS to facilitate classroom economics experiments and to identify an efficient procedure for the implementation. In comparison to the paper-and-pencil method of conducting classroom experiments, the ARS method provides nearly instantaneous display so that the gap between students' actual economic decisions and the analysis of their own behavior is significantly narrowed.

We deem our own experiment with "experiments" a success because our results are encouraging, suggesting that what we're doing is actually helping students better understand abstract concepts. Just as we ask our students to learn from the data, we're plotting a new direction for next semester based on our findings, involving additional experiments, new ways of engaging students, and new evaluation methods.

Donald J. Liu is professor of Applied Economics and a Morse-Alumni Distinguished Teaching Professor at the University of Minnesota, Twin Cities. J. D. Walker is the coordinator of Research and Evaluation Services at the Digital Media Center of the University of Minnesota, Twin Cities. Theresa A. Bauer and Meng Zhao are graduate students in the Department of Applied Economics.

This project has benefited from a fellowship fund provided by the Digital Media Center of the University of Minnesota.

REFERENCES

Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques* (2nd ed). San Francisco: Jossey-Bass, Inc.

Cox, A. J., & Junkin, W. F. (2002). Enhanced student learning in the introductory physics laboratory. *Physics Education, 37*(1), 37-44.

Crouch, C. H., & Mazur, E. (2001). Peer instruction: Ten years of experience and results, *American Journal of Physics, 69*, 970-977.

DeYoung, R. (1993). Market experiments: The laboratory versus the classroom. *Journal of Economic Education, 24*(4), 335-351.

Draper, S. W., & Brown, M. I., (2004). Increased interactivity in lectures using an electronic voting system. *Journal of Computer Assisted Learning, 20*, 81-94.

Durham, Y., McKinnon, T., & Schulman, C. (2007). Classroom experiments: Not just fun and games. *Economic Inquiry, 45*(1), 162-178.

Emerson, T. L. N., & Taylor, B. A. (2004). Comparing student achievement across experimental and lecture-oriented sections of a principles of microeconomics course. *Southern Economic Journal, 70*(3), 672-693.

Holt, C. A., & Laury, S. K., (1997). Voluntary provision of a public good. *Journal of Economic Perspectives, 11*(4), 209-215.

Laury, S. K. (2007). "Using experiments in the classroom." From http://www.cswep.org/laury.html.

Ruffle, B. J. (2003). Competitive equilibrium and classroom pit markets. *Journal of Economic Education, 34*(2), 123-137.

transform
TRANSFORM
Scholarship • Teaching • Learning

Transform is published by the Academy of Distinguished Teachers in the Office for Academic Affairs and Provost and the Center for Teaching and Learning in the Office of Human Resources.

www.transform.umn.edu

This publication/material is available in alternative formats upon request.