

University of Colorado  
President's Teaching and Learning Collaborative (PTLC)  
Report, Spring 2009

Carnegie Academy for the  
Scholarship of Teaching and Learning

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## Foreword

The President's Teaching and Learning Collaborative, PTLC, is a lively partnership of faculty on all University of Colorado campuses dedicated to using the methods of science and scholarship to improve our students' learning. Working as educational researchers, faculty in many disciplines are sharing their ideas and their enthusiasm not only with colleagues at CU, but also, through publication, with faculty around the country and the world. We're proud to introduce this report summarizing the accomplishments of PTLC participants in the past year.

We're very grateful to Presidents Brown and Benson, and to our Provosts, for supporting this work. We're also grateful to the staff of the Carnegie Foundation for the Advancement of Teaching and Learning, and to the members of the Multi-campus Institution Cluster in the Carnegie Academy for the Scholarship of Teaching and Learning for their collegial support as PTLC has developed.

If the work described in this report interests you, please consider getting involved. If you are faculty member at CU, please watch for our annual call for participation, or contact us for more information. If you are at another institution, we would be delighted to discuss PTLC and how it works with you, too.

Sincerely,

Boulder Campus Liaisons

Clayton Lewis, [clayton.lewis@colorado.edu](mailto:clayton.lewis@colorado.edu)

Colorado Springs Campus Liaisons

Kathryn Andrus, [kandrus@uccs.edu](mailto:kandrus@uccs.edu)

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President's Teaching and Learning Collaborative Director

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## Executive Summary

The University of Colorado President's Teaching and Learning Collaborative (PTLC) participates in the system-wide collaboration cluster of the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL). Accordingly, we introduce this report on the first half of our third year of our three year collaboration and commitment with the Carnegie Foundation with a discussion of what we have learned.

### Context

The University of Colorado has three universities, the University of Colorado at Boulder, the University of Colorado at Colorado Springs, and the University of Colorado Denver. The latter was formed recently by merging a previously separate campus in downtown Denver with the Health Sciences center. The President's Teaching and Learning Collaborative is a system-wide program fostered by the President's Teaching Scholars Program, a system-wide program reporting to the System Vice President for Academic Affairs and Research. The President's Teaching Scholars Program recognizes exemplary teaching and research in faculty members on all three University of Colorado campuses. The Steering Committee for PTLC includes faculty from all three universities. Funding for the program comes in part from the system president's office and in part from chancellors of the three universities and was founded by the University President's Teaching Scholars Program, both the sponsor of the Collaborative and the original fundraiser.

### Importance of Assessing Learning in Undergraduate Education

As public resources for support of higher education are increasingly strained, it is especially important that institutions work to maximize the value students receive from their educational experiences. A growing share of support to higher education is likely to come from alumni, and support is more likely when students feel that their alma mater has made their education a top priority. The PTLC faculty researchers work on research projects that aim primarily at assessing student learning at the undergraduate level. Work of this kind can increase retention, student satisfaction, and student success, leading to increased support for the University of Colorado.

### Goals of the PTLC

The goals of the PTLC are to promote research on assessing classroom learning and scholarly teaching in an effort to improve teaching, learning, and classroom assessment in undergraduate and graduate education (including professional schools) and to publish research in a refereed journal (see Appendix A). The scholarship of teaching and learning is the "creation and dissemination of original work that makes a useful contribution to knowledge and practice of other teachers" ([www.carnegiefoundation.org](http://www.carnegiefoundation.org)).

### Impact on Teaching and Learning: The Effect of the PTLC on Education at the University

- Faculty researchers have garnered new perspectives on teaching and learning.
- Participants have made changes to their pedagogy and plan to make more changes in the near future.

- Many faculty researchers have undertaken projects that assess particular teaching methods. The results of their projects may lead to further changes in their curriculum or teaching practices.

#### Impact on Faculty: The Effect of the PTLC on Research Projects

- Many faculty researchers said they would not have pursued research on teaching and learning without the support of the PTLC.
- Most faculty researchers reported that they view the regular progress report meetings as beneficial and enjoyable.
- Most participants have never undertaken research on teaching and learning, and some have not completed research with human subjects before at all. The PTLC works to provide information about education research to participants, and many have noted that the resources of the PTLC fill their need for such information.
- One particular resource the PTLC provides is a support system of experienced researchers to guide faculty researchers in their work. We assign a coach (an experienced education researcher) and a mentor (a disciplinary expert) to each faculty researcher.
- All participants have been enthusiastic about their work with the PTLC this semester. Many have expressed their enjoyment of the project and how beneficial they think their experience has been so far.

#### Toward Future Directions

- Faculty researchers have produced far more publications and given more conference presentations than we are able to feature in this report. We have now created a separate document, the PTLC Index, to track information about the dissemination of PTLC research projects.
- Faculty researchers have expressed their appreciation for presentations by guest speakers at PTLC progress report meetings. In response, the PTLC has scheduled a faculty speaker for each of the 2009 progress report meetings.

#### Conclusion

The Carnegie Foundation for the Advancement of Teaching is under new leadership in the name of President Anthony S. Bryk. It is not known what form, if any, the Scholarship of Teaching and Learning will take at Carnegie from this point forward. It is likely that national activities of the scholarship of teaching and learning will soon reside in the International Society for the Scholarship of Teaching and Learning (ISSOTL) currently housed at Indiana University. Representatives of the PTLC and presenters have attended ISSOLT conferences for the past two years and will again in October 2009. There is a commitment, however, that the University of Colorado President's Teaching and Learning Collaborative will continue to develop and strengthen as more University of Colorado faculty participate and continue to research and publish on scholarly teaching in their disciplines. The PTLC is committed to establishing the University of Colorado as a leader in research on teaching and learning (see Appendix for PTLC Goals 2008-2011).

Index of PTLC Faculty Researcher Publications and Presentations in the  
Scholarship of Teaching and Learning

### **Institutional change**

The PTLC is a program that guides faculty to publish research on teaching and learning. Faculty researchers work on educational research in collaboration with a coach and a mentor, and these triads are often made up of faculty from different campuses. Participants also meet as a group with all other researchers, coaches, and mentors six to eight times. At the end of their year with the PTLC, faculty researchers are expected to disseminate their findings through a peer-reviewed journal publication or conference presentation.

During and after their involvement with the PTLC, researchers also discuss their educational research with members of their department and colleagues at other institutions. Faculty researchers make presentations to members of their departments to inform them of the educational research they have undertaken because of the support of the PTLC. Some also give presentations to their colleges or other university institutions. Most faculty researchers are engaging in educational research for the first time, though all have engaged in research within their discipline. Because of their positive experience within the PTLC, participants express their hope that research on teaching and learning will gain esteem within the university.

In this document, you will find concrete examples of the ways the work of faculty researchers has spread beyond the PTLC. All of these examples of the dissemination of research on teaching and learning have potential ripple effects that spread beyond their immediate circumstances. One hope is that the work of faculty researchers generates interest in educational research so that other faculty members begin their own educational research investigations. The ultimate goal is that this research informs and improves education at the University of Colorado.

### **PTLC Research Proposals**

**PTLC 2006 Cohort:** 6 proposals submitted and 6 accepted

- CU Boulder – 2
- UC Denver – 3
- CU Colorado Springs – 1

**PTLC 2007 Cohort:** 19 proposals submitted and 16 accepted

- CU Boulder – 8
- UC Denver – 6
- CU Colorado Springs – 2

**PTLC 2008 Cohort:** 15 proposals submitted, 15 accepted and 2 extended from 2007 (17 total)

- CU Boulder – 9
- UC Denver – 6
- CU Colorado Springs – 2

**PTLC 2009 Cohort:** 22 proposals submitted, 18 accepted and 4 reapplications accepted (22 total, with 1 accepted applicant declining)

- CU Boulder – 7
- UC Denver – 8
- CU Colorado Springs – 2

### **PTLC Faculty researcher demographics**

**PTLC 2009 Cohort:** 21 total faculty researchers

- Male: 13 total – 10 tenure track, 3 instructor
- Female: 8 total – 7 tenure track, 1 instructor

### **PTLC Progress report meetings**

PTLC 2006 Cohort: 8 meetings occurred

PTLC 2007 Cohort: 6 meetings occurred

PTLC 2008 Cohort: 8 meetings occurred

PTLC 2009 Cohort: 6 meetings scheduled

PTLC Faculty Researchers Proposals for 2009 Cohort

Total 21 faculty researchers

All researchers are CU faculty members; none is a President's Teaching Scholar.

## University of Colorado at Boulder

### Scholarly Work

#### *Peer-reviewed Journals, Periodicals*

##### **Computer Science**

- Lewis, Clayton. UCB. 2007 Attitudes and beliefs about computer science among students and faculty. *SIGCSE Bulletin*. 39, 2 (Jun. 2007), 37-41.

##### **Ecology & Evolutionary Biology**

- Basey, John. UCB. January 2008 issue of *International Journal for the Scholarship of Teaching & Learning* available online at [http://www.georgiasouthern.edu/ijsotl/issue\\_v2n1.htm](http://www.georgiasouthern.edu/ijsotl/issue_v2n1.htm)

##### **Electrical & Computer Engineering**

- Mickelson, Alan. UCB. Published: Richard Franzl, Deniz Gurkan, Driss Benhaddou, and Alan Mickelson, "E-Learning Laboratories for Optical Circuits: Separation of Imperfections in Technology and Teaching Methodologies," *International Journal of Modern Engineering*, Spring/Summer 2008 Issue.
- Mickelson, Alan. UCB. Published: D. Gurkan, A. Mickelson, and D. Benhaddou, "Remote Laboratories for Optical Circuits," *IEEE Transactions on Education* 51(1), 54-60, (2008).

#### *Peer-reviewed Conferences, International and National*

##### **Applied Mathematics**

- Nelson, Mary. UCB. "Reforming Calculus Teaching: Oral Assessments before Tests." Presented at North American Chapter of the International Group for the Psychology of Mathematics Education. Toronto, Canada. October, 2004.
- Nelson, Mary. UCB. "Calculus I Oral Assessments: Improved Grades, Retention and Calculus II Success." Paper to be presented at the Joint Mathematics Meeting. San Diego, California. January, 2008.
- Nelson, Mary. UCB. "A reform approach to calculus: Improved retention, grades, and conceptual understanding. Presented at the Annual AERA Conference. Chicago, IL. April, 2007.

##### **Communication**

- White, Cindy. UCB. Presentation as part of a panel about Teacher/Scholar Reflection on Teaching Nonverbal Communication at the National Communication Association. November 2008.

##### **Electrical & Computer Engineering**

- Mickelson, Alan. UCB. Published: Driss Benhaddou and Alan Mickelson, "Collaborative Research: An Online Laboratory for Optical Circuits Courses," Course Curriculum and Laboratory Improvement (CCLI) Program Principal Investigator (PI) Conference, August 13-15, 2008 (Washington DC).
- Mickelson, Alan. UCB. Published: Alex Awskiewicz, Ideen Taeb, Driss Benhaddou, Deniz Gurkan, Frank Barnes and Alan Mickelson, "A Two Credit Hour Stand-Alone

Remote Optics Laboratory,” Proceedings of the American Society for Engineering Education Annual Conference and Exposition, Honolulu, Hawaii (June 2007).

- Mickelson, Alan. UCB. Published: Deniz Gurkan, Alan Mickelson, and Driss Benhaddou, “Results of a Collaborative Remote *Optical Circuits* Laboratory,” Proceedings of the American Society for Engineering Education Annual Conference and Exposition, Honolulu, Hawaii (June 2007).
- Mickelson, Alan. UCB. Published: Richard Franzl, Deniz Gurkan, Driss Benhaddou, and Alan Mickelson, “E-Learning Laboratories for Optical Circuits: Separation of Imperfections in Technology and Teaching Methodologies,” Proceedings of the 2006 IJME-Intertech Conference Session ENT 103-094 (October, 2006).
- Mickelson, Alan. UCB. Published: Driss Benhaddou, Deniz Gurkan, Harshita Kodali, Edward McKenna, Alan Mickelaon, and Frank Barnes, “Online Laboratories for Optical Circuits Courses: Effective concept mapping,” Proceedings of the 2006 American Society for Engineering Education Gulf–Southwest Annual Conference, Southern University and A&M College, March 2006.
- Mickelson, Alan. UCB. Published: Edward McKenna, Randal Direen, Frank Barnes, Deniz Gurkan, Alan Mickelson, and Driss Benhaddou, “E-Learning Environmental Design of a Distributed Online Laboratory for Optical Circuits Courses,” Proceedings of the American Society for Engineering Education Annual Conference and Exposition, Portland, Oregon, June 2005.

### **Mechanical Engineering**

- Hertzberg, Jean. UCB. Presentation at American Physical Society, Division of Fluid Dynamics Annual Meeting, fall 2007

### **Music**

- Cremaschi, Alejandro. UCB. Presentation titled, “Self-Efficacy: A key to achievement and motivation for music students” at the conference of the Music Teachers National Association in Atlanta. April 1, 2009.
- Cremaschi, Alejandro. UCB. Poster presentation titled, “Self-efficacy, practice, achievement and attitudes toward piano in music-major class piano students” at the conference of the Regional College Music Society in Denver. April 3-4, 2009.

### **Sociology**

- Mollborn, Stefanie UCB, and Angel Hoekstra. “Assessing a New Pedagogical Model for Clicker-Based Instruction in the Social Sciences.” Presented at Society for the Study of Social Problems 2008 annual meeting on August 1, 2008, Boston.

### *Regional Conferences*

#### **Applied Mathematics**

- Nelson, Mary. UCB. “Calculus I: A Reform Approach.” Paper presented at NCTM Regional Conference. Denver, Colorado. November, 2005.

#### **Art and Art History**

- Haynes, Deborah. UCB. Presentation about contemplative practices at the First Annual Association for Contemplative Mind in Higher Education Conference. Amherst, MA. April 24-26, 2009.
- Haynes, Deborah. UCB. Presentation about the science of meditation at an FTEP

meeting, "Teaching Mindfulness Practices." Fall 2009.

### **Communication**

- White, Cindy. UCB. Presentation of a paper about student perspectives on learning at the Western States Communication Association. February 2008.

### **Program for Writing and Rhetoric**

- Bliss, Ann. UCB. Presentation at the Colorado Telecommunications Conference. April 2007.

### **Sociology**

- Mollborn, Stefanie UCB, and Angel Hoekstra. "Assessing a New Pedagogical Model for Clicker-Based Instruction in the Social Sciences." Colorado Learning and Teaching with Technology Conference (COLTT) 2008, Boulder, CO.

### **Spanish & Portuguese**

- Becher, Anne. UCB. Presentation: "Is there Life Beyond this Stack of Papers" at the Colorado Council of Foreign Language Teachers on February 16, 2008, in Denver.

### *Local Forums, CU Boulder*

#### **Ecology & Evolutionary Biology**

- Basey, John. UCB. Presented a seminar to the Graduate Teacher Program at CU Boulder in September 2007
- Basey, John. UCB. Results will be integrated into lab manuals for General Biology Lab I, General Biology Lab II, General Biology Lab: A Human Approach, and Microbiology Lab

#### **Geography and Environmental Studies**

- Blanken, Peter, UCB. Presented "Teaching Large Classes" as part of a workshop series to faculty as part of the Geography Faculty Development Alliance. June 15-21, 2008. CU-Boulder.

#### **Mechanical Engineering**

- Hertzberg, Jean. UCB. Professor Hertzberg coordinated a presentation of learning theories to eight engineering faculty members by CU faculty researcher Sarah Hug, October 2008.

#### **President's Teaching Scholars Program**

- CU-Boulder Flagship 2030 Task Force Report on Outreach and Engagement

#### **Spanish & Portuguese**

- Becher, Anne. UCB. Presented "Effective Feedback Techniques for Student Writing" to department in March 2008

#### **Sociology**

- Mollborn, Stefanie UCB, and Angel Hoekstra. "Strategies for Using Clickers in the Social Sciences and Humanities." Presented at the Colorado Learning and Teaching with Technology Conference on August 12, 2008. Boulder, CO.
- Stefanie Mollborn and Angel Hoekstra. "Pedagogical Practices for Using Clickers in Sociology." Presented to the University of Colorado at Boulder Department of Sociology. December 2008.
- Mollborn, Stefanie, and Angel Hoekstra. UCB. "New Research in the Pedagogy of Learning with Clickers." University of Colorado Conference on Teaching, Learning, and Scholarship in the Third Millennium University, 2009.

## University of Colorado Denver

### Scholarly Work

#### *Peer-reviewed Journals, Periodicals*

##### **Education & Human Development**

- Gabringer, Scott. UCD. Grabinger, R. S., Aplin, C., & Ponnappa-Brenner, G. (2008). Supporting learners with cognitive impairments in online environments. *TechTrends (X)*, January/May, pp. XXX. In Press.

#### *Peer-reviewed Conferences, International and National*

##### **Communication and Evaluation**

- Kellar-Guenther, Yvonne. Evaluating training efficacy: A pilot in using delayed evaluations. Presentation at the annual American Evaluation Association Meeting. Denver, CO. November 2008.

##### **Education & Human Development**

- Grabinger, R. Scott UCD, Aplin, C., & Ponnappa-Brenner, G. (2007). Supporting postsecondary learners with disabilities in online environments. Sloan-C Conference, Orlando, FL, November.
- Grabinger, R. Scott UCD, Aplin, C., & Ponnappa-Brenner, G. (2007). Supporting postsecondary learners with disabilities in online environments. Presentation at the m-ICTE2000 conference, Seville, Spain. Refereed.

##### **Medical Oncology**

- Bemis, Lynne UCD, & Burhansstipanov, Linda. "Genetic Education for Native Americans." Presented at the Health Disparities and Social Justice Course on June 24, 2008. Houston, TX.

##### **Music & Entertainment Industry Studies**

- Coe, Judith. UCD. Creativity and Reflection: Expanded Learning in a Singer/Songwriter Ensemble, Paper presented at the International Society for the Scholarship of Teaching and Learning (ISSOTL) Conference 2008. Edmonton, Alberta, Canada. Saturday, October 18, 2008.

##### **Pharmacy**

- Tuner, Christopher. UCD. A poster abstract will be submitted for presentation at the July, 2008 annual meeting of the American Association of Colleges of Pharmacy

#### *Local Forums, CU Denver*

##### **Business**

- Bettenhausen, Ken. UCD. Presented preliminary findings to Quality Undergraduate Experience steering committee.
- Bettenhausen, Ken. UCD. Presented preliminary findings to First Year Seminar Steering Committee.
- Bettenhausen, Ken. UCD. Plan to present findings to UCD Dean's Council.

##### **Center for Faculty Development**

- Stevens, Ellen and Muth, Rod. A webpage dedicated to the Scholarship of Teaching and Learning has been added to the website for the Center for Faculty Development. [http://thunder1.cudenver.edu/CFD/virtual\\_cfd/sotl/sotl.htm](http://thunder1.cudenver.edu/CFD/virtual_cfd/sotl/sotl.htm)

#### **Education & Human Development**

- Grabinger, R. Scott UCD, & Aplin, Cary. (2006). The Intersection of Neuroscience and Education. Presented at the Developmental Psychobiology Research Group at the University Health Sciences Center. February 14, 2006. Invited.

#### **Medical Oncology**

- Bemis, Lynne UCD. Professor Bemis's students have started a Health Care Disparities Interest Group and have received money to travel to conferences and support their work.
- Bemis, Lynne UCD. Professor Bemis received the Chancellor's Recognition Diversity Award.

#### **Music & Entertainment Industry Studies**

- Coe, Judith. UCD. Singer/Songwriter Ensemble Concerts and Photo Documentary Exhibit held at UCD on April 30, 2008.
- Coe, Judith. UCD. Presentation to Music & Entertainment Industry Studies Department, Faculty Meeting College of Arts & Media, Downtown Denver Campus. Friday, August 15, 2008.
- Coe, Judith. UCD. Presentation to College of Arts & Media, Faculty Meeting. Friday, September 5, 2008.
- Coe, Judith. UCD. Presentation to her department about the ISSOTL conference she attended. October 22, 2008.

#### **Nursing**

- Rapport, Mary Jane. UCD. Presentation about the PTLC at the Department of Physical Medicine and Rehabilitation (PM&R) Faculty meeting. This was presented as part of a discussion regarding professional development and about faculty promotion. The information was shared as part of an overall discussion on how faculty who have a primary emphasis on clinical practice can seek opportunities to learn more about teaching and learning and also get support for research in this area of academic scholarship. Professor Rapport described the program, the financial support, and the other support that can be gained through participation in the collaborative. February 2, 2009.
- Rapport, Mary Jane. UCD. Professor Rapport spoke about the PTLC with her Program Director in a recent meeting by updating the Director on her progress with the manuscript that will soon be submitted. They discussed how the PTLC has helped to provide necessary support for the graduate student and with the motivation to keep moving forward. Spring 2009.

#### **Undergraduate Experiences, the Provost's Office, and the Center for Faculty Development**

- 4<sup>th</sup> Annual Undergraduate Experiences Symposium, focusing on definitions of scholarship and faculty rewards

## University of Colorado at Colorado Springs

### Scholarly Work

#### *Peer-reviewed Journals, Periodicals*

##### **Education**

- Cheesman, E. A., Winograd, G. R., & Wehrman, J. D. (in press). Clickers in teacher education: Student perceptions by age and gender. *Journal of Technology and Teacher Education*.

##### **Mathematics**

- Radu Cascaval, Kethera Fogler, Gene Abrams, and Robert Durham. UCCS. "Evaluating the Benefits of Providing Online Lectures to In-class Math Students." *Journal of Asynchronous Learning Networks*. In Press.

##### **Visual and Performing Arts**

- MacAulay, Suzanne P. UCCS. "Lessons in Material Culture" in *Transformations: The Journal of Inclusive Scholarship and Pedagogy*, Vol. XVIII, No. 2 (Fall 2007/Winter 2008), pp. 120-130.

#### *Peer-reviewed Conferences, International and National*

##### **English**

- Dew, Debra. UCCS. "Assessing the Impact of Individualized Writing Instruction on Writing Performance and Retention." International Society for the Scholarship of Teaching and Learning. Georgetown University. Washington D.C. November 2006.
- Dew, Debra. UCCS. "Theorizing Agency: Student Narratives of Institutional Critique as Actionable Grounds for Programmatic Change." Thomas R. Watson Conference in Rhetoric and Composition. Louisville, Kentucky. October 2006.
- Dew, Debra. UCCS. "Tracking the Impact of Individualized Writing Instruction on Writing Performance and First-Year Retention." Conference of the Council of Writing Program Administrators. Chattanooga, Tennessee. July 2006.

##### **Organic Chemistry**

- Schoffstall, Allen, Barbara Gaddis, Rosaura Padilla and Steven Horner. "Undergraduate Research in Chemistry: Is It Worth It?" The 20<sup>th</sup> Biennial Conference on Chemical Education. Bloomington, Indiana. July 2008.

##### **Visual and Performing Arts**

- MacAulay, Suzanne. UCCS. "Art history, assessment, and ethnography." MUSE [Measuring Unique Studies Effectively] Conference. Savannah College of Art and Design. February 8-11, 2009.

#### *Local Forums, UCCS*

##### **Visual and Performing Arts**

- MacAulay, Suzanne. UCCS. Professor MacAulay will meet with her board of VAPA directors and will take time to discuss the PTLC and my experience as well as the full VAPA Faculty meeting on December 5, 2008.

- MacAulay, Suzanne. UCCS. Professor MacAulay will present the findings from her PTLC research at the MUSE Conference, 8-11 February 2009.
- Smith, Curtis. UCCS. Professor Smith will present “Assessing Creativity” to a Teaching and Learning Center event. April 2009.
- Smith, Curtis. UCCS. Professor Smith will give a presentation about creativity at the Colorado Spring Fine Arts Center during Curiosity Unlimited. December 2009.

**Education**

- Cheesman, Elaine. UCCS. Professor Professor Cheesman gave a presentation about her PTLC research project to the Special Education Department. February 19, 2009

## Networking of the Collaborative Across the Campuses

### Intercampus support for researchers

*Provosts involved with PTLC*

#### **CU-Boulder**

- Phil DiStefano

#### **UC Denver**

- Roderick Nairn

#### **CU-Colorado Springs**

- Margaret Bacon

*Coaches involved with PTLC*

#### **CU-Boulder**

- Clayton Lewis, Computer Science
- Mary Nelson, Applied Mathematics
- Erik Ellis, Writing and Rhetoric
- Steven Pollock, Physics
- Martin Bickman, English
- Rosalyn Zigmond, Writing and Rhetoric
- Kate Semsar, Integrative Physiology
- Valerie Otero, School of Education
- Francoise Benay, Integrative Physiology
- Jean Hertzberg, Mechanical Engineering

#### **UC Denver**

- Rod Muth, Education and Human Development
- Gail Armstrong, School of Nursing
- Deborah Thomas, Geography and Environmental Studies
- Ellen Stevens, Education and Human Development
- Carol Kamin, School of Medicine
- Gayle Preheim, College of Nursing
- Robin Michaels, School of Medicine
- Judith Coe, Music and Entertainment Industry Studies
- Joanna Dunlap, Education and Human Development
- Christopher Turner, School of Pharmacy

#### **CU-Colorado Springs**

- Barbara Gaddis, Director of Excel Centers and Director of Student Retention

*Mentors involved with PTLC*

**CU-Boulder**

- Alan Mickelson, Electrical and Computer Engineering
- Rosalyn Zigmond, Writing and Rhetoric
- Martin Bickman, English
- Sarah Taylor Hug, research faculty
- Mary Nelson, Applied Mathematics
- Deborah Haynes, Art and Art History
- James Austin, Music Education
- Leslie Irvine, Sociology
- Dale Mood, Integrative Physiology
- John Basey, Ecology and Evolutionary Biology
- Daniel Liston, School of Education
- Michael Zimmerman, Center for the Arts and Humanities

**UC Denver**

- Gwyn Barley, Center for Advancing Professional Excellence
- Joe Huggins, Clinical Science
- Diane Skiba, College of Nursing
- Gretchen Guiton, School of Medicine
- Francis Jermance, Music and Entertainment Industry Studies
- Robert Valuck, School of Pharmacy
- Marianne McCollum, School of Pharmacy

**CU-Colorado Springs**

- Ted Lamb, Institutional Research
- Suzanne MacAulay, Visual and Performing Arts
- Glen Whitehead, Music
- Steve Jennings, Geography and Environmental Studies

*Student associates involved with PTLC as research assistants*

**CU-Boulder**

- 2007: 5 students
- 2008: 6 students

**UC Denver**

- 2007: 5 students
- 2008: 4 students

**CU-Colorado Springs**

- 2007: 2 students
- 2008: 2 students

*Support teams for researchers*

**2008 Researcher: Suzanne MacAulay, UCCS, Visual and Performing Arts**

- Mentor: Deborah Haynes, Mentor, UCB, Art and Art History
- Coach: Rod Muth, UCB, Education and Human Development

**2008 Researcher: Yvonne Kellar-Guenther, UCD, Communication and Evaluation**

- Mentor and Coach: Rosalyn Zigmond, UCB, Writing and Rhetoric

**2009 Researcher: Deborah Haynes, UCB, Art and Art History**

- Mentor: Suzanne MacAulay, UCCS, Visual and Performing Arts
- Coach: Clayton Lewis, UCB, Computer Science

**2009 Researcher: Curtis Smith, UCCS, Visual and Performing Arts**

- Mentor: Glen Whitehead, UCCS, Visual and Performing Arts
- Coach: Sarah Hug, UCB, ATLAS Research Associate

*Cross-campus collaborations*

**Professors Suzanne MacAulay (CU-Colorado Springs) and Deborah Haynes (CU-Boulder)**

- Professor MacAulay is going host Professor Haynes for a presentation about her work at the CU-Colorado Springs campus

**Professor Lynne Bemis**

- Professor Bemis is working as a prospective board member of a “Challenge Grant” the Anschutz Medical Campus and CU-Boulder Department of Biology

## **Narratives from researchers**

### **Civil, Environmental, and Architectural Engineering**

- Chinowsky, Paul. UCB. "I have been interested in making changes to education for quite a while. It's something that I think is a problem in my field. Engineering education has fallen behind where it really should be. Improving teaching has been an interest of mine for quite a while, and I have published articles on education. I have also been involved with ASEE [American Society for Engineering Education] for a long time. When I saw the call for proposals, it was timely."

### **Music & Entertainment Industry Studies**

- Coe, Judith. UCD. "My research assistant is an undergraduate who will graduate this semester and go on to do a master's degree. He is in my singer/songwriter ensemble and has an interesting story that we are also writing about, together. He has a slight speech impediment, with him since childhood; last semester, it starting showing up in his singing, highly unusual (people who stutter typically can sing without the stutter occurring). I worked with him on carry-over exercises (speech to singing and back; I worked as a music therapist for a few years) and other strategies in our lessons, and encouraged him to seek out a specialist to work with, to fight through it to be able to do his music (which is amazing). He has done that, and has an incredible story to tell. As a result, he believes that his songwriting, creative work, and his developing cognitive understanding of his condition and how that intersects with how he sees his future, is providing him with an enriched opportunity for personal and artistic growth (and I hear it in his singing/songwriting)."
- Coe, Judith. UCD. On her attendance at the ISSOTL conference in Edmonton in October 2008: "I was so pleased at the new contacts I made during ISSOTL in Edmonton. What a wonderful conference... it is a well-kept secret! People are sure resistant to change, innovation and exploration, aren't they?! We are beginning a campus-wide conversation on the very old school faculty reward system we have in place on my campus, and having attended this conference helped me clarify my own knowledge about and understanding of SOTL and its significance to students and faculty. Thank you, Mary Ann, for providing me with the travel grant so that I could attend and present!"

### **Sociology and Institute of Behavioral Science**

- Mollborn, Stefanie. UCB. "I like being part of the PTLC because I am able to have conversations about educational research with people from other departments. The conversations are interesting because they include ideas about how to have innovative teaching within the particular constraints of this university, which include large classes and few TAs."

### **Program for Writing and Rhetoric**

- Bliss, Ann. UCB. "PTLC participation was also an excellent means of meeting

colleagues from the other campuses, which has been a very rare experience in my career at CU Boulder. I believe that more such activities should be fostered, especially as my discussions with faculty from the Medical School (of all places) about their study helped me frame some of my research and my analysis. The PTLC colleagues offered expertise, materials, access to related topics, websites that became useful, etc. I hope my contribution to those colleagues was equally valuable.”

## **Campus outreach**

### **Music & Entertainment Industry Studies**

- Coe, Judith. UCD. The College of Arts and Media will hold faculty-mentoring sessions during the Spring 2009 semester. Professor Judith Coe of the PTLC will present along with her colleague Professor Mary Connelly. This two-part mentoring session is centered upon the scholarship of teaching and learning. In the first session faculty mentors will present ideas for developing successful teaching and learning strategies while exploring opportunities for enhancing the scholarship of teaching. For the second session faculty mentors will assist participants in developing such things as, course learning objectives, project rubrics, the writing and submission of teaching and learning articles and proposals to present at teaching oriented conferences.

### **The College of Arts and Media**

- Coe, Judith; Stevens, Ellen; & Muth, Rodney. UCD. The College of Arts and Media has formed a scholarly teaching group that includes PTLC participants

## **Collaborations with people from other universities**

### **Music & Entertainment Industry Studies**

- Coe, Judith. UCD. The Dean of Arts from the University of Alberta wants to do some consulting with Judith on her college's move toward a different arts and music curriculum.
- Coe, Judith. UCD. Two SOTL researchers from the UK, one architecture researcher and one graphic design researcher are looking at threshold concepts in the arts and would like to work with Professor Coe on developing their ideas.

## **A RETURNING RESEARCHER**

### **Electrical and Computer Engineering**

- Mickelson, Alan, UCB. Professor Mickelson was part of the 2007 cohort and worked on a project to develop a formative assessment for an online laboratory in Optical Circuits. He has applied and was accepted to be part of the 2009 cohort with a new project about the content of a single-semester interdisciplinary course designed to prepare the students for fieldwork in a developing region of a developing country.

## Overview of the President's Teaching and Learning Collaborative

The University of Colorado President's Teaching and Learning Collaborative (PTLC) participates in the system-wide collaboration cluster of the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL). Accordingly, we introduce this report on the first half of our third year of our three year collaboration and commitment with the Carnegie Foundation with a discussion of what we have learned.

### *Context*

The University of Colorado has three universities, the University of Colorado at Boulder, the University of Colorado at Colorado Springs, and the University of Colorado Denver. The latter was formed recently by merging a previously separate campus in downtown Denver with the Health Sciences center. The President's Teaching and Learning Collaborative is a system-wide program fostered by the President's Teaching Scholars Program, a system-wide program reporting to the System Vice President for Academic Affairs and Research. The President's Teaching Scholars Program recognizes exemplary teaching and research in faculty members on all three University of Colorado campuses. The Steering Committee for PTLC includes faculty from all three universities. Funding for the program comes in part from the system president's office and in part from chancellors of the three universities and was founded by the University President's Teaching Scholars Program, both the sponsor of the Collaborative and the original fundraiser.

### *Importance of Assessing Learning in Undergraduate Education*

As public resources for support of higher education are increasingly strained, it is especially important that institutions work to maximize the value students receive from their educational experiences. A growing share of support to higher education is likely to come from alumni, and support is more likely when students feel that their alma mater has made their education a top priority. As progress in Boulder's physics education in particular has shown, improvements in teaching driven by ongoing assessment of student learning can have true impact in making more students successful. More work of this kind can increase retention, student satisfaction, and student success, leading to increased support for the University of Colorado.

The PTLC faculty researchers work on research projects that aim primarily at assessing student learning at the undergraduate level. The PTLC does involve professional schools as well (e.g., Pharmacy, Nursing, Medicine). Through their research on teaching and learning along with course changes in instruction and curriculum, the program is improving the undergraduate and graduate learning experiences at the university. This occurs through changes PTLC faculty researchers make in their own teaching after conducting their research. In addition, other faculty beyond PTLC participants may work to enhance their classrooms as a result of the dissemination of PTLC research.

### *Support for Faculty Researchers*

PTLC recruited faculty investigators for research projects on teaching and learning at each university through a call for proposals (see Appendix). Investigators are supported by coaches (faculty knowledgeable about the educational research process) and mentors (faculty knowledgeable about the investigator's discipline.) Investigators, coaches, mentors, and steering committee members met four times in the spring and two times in the fall to discuss research in teaching and learning and scholarship and project progress, both issues and successes.

### *Institutional Support*

For the first time, the President's Teaching Scholars Program presented a conference to which all PTLC participants were invited. This full day conference, entitled *Teaching, Learning and Scholarship in the Third Millennium University*, was held on the Anschutz Medical Campus on Friday, February 27, 2009. Two faculty members with prior involvement in the PTLC, Stefanie Mollborn and Mary Nelson, gave presentations related to their PTLC research projects. Many other researchers, coaches, mentors, and faculty directors from the full cohort were participants including John Basey, Judith Coe, Jeffrey Druck, Brian Hemstreet, Jean Hertzberg, Jacqueline Jones, Clayton Lewis, Robin Michaels, Alan Mickelson, Rodney Muth, Mary Nelson, Wesley Nuffer, Steven Pollock, Gayle Preheim, and Mary Jane Rapport.

Faculty researchers are supported by funding that allows them to hire student research assistants. Faculty researchers are free to choose their assistant, who may be a graduate or undergraduate student. Research assistants aid researchers in data collection and analysis, to name two.

Travel funds are also offered to faculty researchers. Faculty researchers must complete an application. Funds typically support researchers attending discipline specific conferences to formally present their PTLC research projects as scholarship and to represent the university.

### *Development across Campus Boundaries*

A product of PTLC in the system is that faculty at all three universities have the opportunity to carry out research in teaching and learning projects with collegial support, often for the first time. Faculty from all three universities participated in a pilot program in 2006 that led to the launch of PTLC in 2007 and established the program. It is doubtful that the leadership available at any one of the universities would have created a teaching and learning research initiative on an individual campus because of the small number of faculty with the necessary experience and availability to create such a collaborative.

Some PTLC participants have suggested that the program presents itself as much as an activity of the separate universities as a system-level program. They believe that some faculty members are more likely to respond to what they see as a "home" or campus initiative. They may also be responding to former President Brown's directive in system administration to de-emphasize system level programs.

The PTLC 2008 distributed leadership model suggests both campus and system collaborations. The distributed leadership model includes campus faculty directors who act as liaisons for each of the campuses. Program director Mary Ann Shea maintains contact with the campus faculty directors who are expected to be in direct contact with the PTLC faculty

researchers on their respective campuses. The PTLC's current faculty directors come from a variety of disciplines:

University of Colorado at Boulder

- **Computer Science:** Professor Clayton Lewis

University of Colorado at Colorado Springs

- **Geography and Environmental Studies:** Professor Thomas Huber
- **Teaching and Learning Center:** Professor Kathy Andrus
- **Visual and Performing Arts:** Professor Suzanne MacAulay

University of Colorado Denver, Anschutz Medical Campus

- **School of Medicine:** Professor Robin Michaels
- **School of Pharmacy:** Professor Christopher Turner

University of Colorado Denver, Downtown Denver Campus

- **Education and Human Development:** Professor Rod Muth
- **Center for Faculty Development:** Professor Ellen Stevens

The collaborative promotes distribution of informational resources. In the spring of 2008, librarians from two of the universities collaborated to identify library resources in education research for the participants. An experienced teaching and learning researcher presented on educational theory from the University's Boulder campus. It is unlikely that participants from the other universities would have had access to this opportunity outside the PTLC framework. This presentation was repeated in the spring of 2009 as well.

Partly because the program is in its infancy, there have been only a few collaborations among researchers across university boundaries. There have been a few cross-university contacts outside the group meetings. More sustained interactions are developing. Participants have indicated they hope to witness or be part of "cross university" collaborations in the future. Participants, however, report that they greatly enjoy descriptions of varying student learning, cultures and pedagogy from the other campuses.

Interviews and surveys document the impact of the small-group discussions among investigators, coaches, and mentors at the PTLC progress report meetings. There is little data thus far that having attendees from the different universities is uniquely valuable in teaching and learning but is valued in relation to understanding our campuses visions and students. In theory, an education research activity at any one university could possibly draw nearly the same range of disciplinary participation. Interest in and knowledge of the assessment of learning in higher education is thinly spread. A system-wide collaboration has drawn together a critical mass of faculty.

*Breadth of the PTLC*

The President's Teaching and Learning Collaborative (PTLC) is a University of Colorado system-wide program that serves faculty at three campuses: CU-Boulder, CU-Colorado Springs, and UC Denver. The faculty researchers from 2006 through 2009 have come from a variety of disciplines:

University of Colorado at Boulder

- **Applied Mathematics:** Professor Mary Nelson
- **Art and Art History:** Professor Deborah Haynes
- **Astrophysical and Planetary Sciences:** Professor Michael Shull, Professor John Stocke
- **Civil, Environmental, and Architectural Engineering:** Professor Paul Chinowsky
- **Communication:** Professor Cindy White
- **Computer Science:** Professor Clayton Lewis
- **Ecology and Evolutionary Biology:** Professor John Basey
- **Education:** Professor Susan Jurow
- **Electrical and Computer Engineering:** Professor Alan Mickelson
- **English:** Professor Mary Klages
- **Geography:** Professor Peter Blanken
- **Integrative Physiology:** Professor Janet Casagrand and Professor Robert Hermanson
- **Journalism and Mass Communication:** Professor Kendra Gale
- **Mechanical Engineering:** Professor Michael Hannigan; Professor Jean Hertzberg; Professor Shelly Miller
- **Music:** Professor Alejandro Cremaschi
- **Sociology:** Professor Stefanie Mollborn
- **Spanish and Portuguese:** Professor Anne Becher
- **Writing and Rhetoric:** Professor Anne Bliss, Professor Erik Ellis, Professor Rosalyn Zigmund

University of Colorado at Colorado Springs

- **Chemistry:** Professor Allen Schoffstall
- **Education:** Professor Elaine Cheesman
- **English:** Professor Debra Dew
- **Geography and Environmental Studies:** Professor Brandon Vogt
- **Kramer Family Library:** Professor Sue Byerley
- **Mathematics:** Professor Gene Abrams, Professor Radu Cascava
- **Visual and Performing Arts:** Professor Suzanne MacAulay, Professor Curtis Smith

University of Colorado Denver

- **Business:** Professor Kenneth Bettenhausen
- **Communication and Evaluation:** Professor Yvonne Kellar-Guenther
- **Education and Human Development:** Professor Scott Grabinger, Professor Rodney Muth
- **Mathematical & Statistical Sciences:** Professor Diana White
- **Medicine:** Professor J. John Cohen, Professor Joe Huggins, Professor Lynne Bemis, Professor Jeffrey Druck
- **Music and Entertainment Industry Studies:** Professor Judith Coe, Professor Chris Daniels, Professor Storm Gloor, Professor Sean McGowan, Professor Paul Musso
- **Nursing:** Professor Gail Armstrong, Professor Gayle Preheim, Professor Jane Kass-Wolff, Professor Ernestine Kotthoff-Burrell, Professor Mary Jane Rapport, Professor Cathy Thompson, Professor Jacqueline Jones

- **Pharmacy:** Professor Christopher Turner, Professor Brian Hemstreet, Professor Wesley Nuffer
- **Psychology:** Professor Richard Allen

### *Goals of the PTLC*

The goals of the PTLC are to promote research on assessing classroom learning and scholarly teaching in an effort to improve teaching, learning, and classroom assessment in undergraduate and graduate education (including professional schools) and to publish research in a refereed journal (see Appendix A). The scholarship of teaching and learning is the "creation and dissemination of original work that makes a useful contribution to knowledge and practice of other teachers" ([www.carnegiefoundation.org](http://www.carnegiefoundation.org)).

The program director, Dr. Mary Ann Shea, and coordinator, Prof. Clayton Lewis, requested proposals in the fall of 2006. Participant-researchers accepted to the program were matched with coaches (faculty with knowledge and the practice of educational research and trained in the Carnegie Foundation coaching process) and mentors (faculty with expertise in the disciplines being examined). Beginning with the cohort, not all mentors and coaches were from the faculty researchers' campus. Thus, new and interdisciplinary networking between campuses began. Participant-researchers received modest funding for student researchers to support data collection and analysis. The funding came from two sources: the program and campus provosts. In addition, researchers received partial funding for travel to discipline conferences, where they disseminate their professional work and contributions in educational research publicly.

Participant-researchers met with coaches and mentors and attended whole group progress report meetings on several occasions. The purposes of the meetings were:

- to attend to administrative tasks
- to distribute literature resources and discuss literature reviews
- to report on educational research progress
- to problem solve regarding research difficulties
- to discuss relevant topics in teaching and learning by faculty presenters
- to discuss library and Internet research resources

While the meetings, establishing personal connections, and discussing teaching and learning were the foremost resources provided by the PTLC, additional resources included:

- research articles sent via mail and discussed in meetings
- a library resource web page with links to research journals, online communities and investigations of pedagogy initiatives at other campuses
- access to mentors with disciplinary expertise and coaches with research expertise
- involvement of faculty presenters and former faculty researchers from the Collaborative

Through our campus faculty directors, we have created a structure that can support faculty researchers on each campus by symposia and workshops, group meetings with researchers, and meetings with researcher-coach-mentor triads. Faculty researchers are also important to institutional change. One way they affect their colleagues is through their involvement in policy and administration.

### *Central PTLC Activities*

On December 12, 2008, the 2009 cohort met for the first time. Of the 22 faculty researchers in the cohort, 19 were present at the launch meeting. Twenty coaches and mentors also participated. Mary Ann Shea presented information about the Scholarship of Teaching and Learning and faculty researchers spoke briefly about their proposed research projects. Vice-President Michael Poliakoff also spoke to the group about the importance of researching teaching and learning.

The 2009 cohort reconvened for the spring semester on January 28. Professor Yvonne Kellar-Guenther (UC Denver) and Professor Claire Dunne (CU-Boulder) began the meeting with presentations related to the HRC/IRB process. After the presentation, PTLC participants met in small groups to discuss their progress of their research projects. The meeting was attended by 12 of the faculty researchers and 10 others (director, research assistant, campus faculty directors, coaches, and mentors).

The cohort met again on March 5. Participants first learned about conducting literature searches through a multimedia presentation by Professor Jennifer Knievel of the University of Colorado at Boulder. After the presentation, PTLC participants met in small groups to discuss their research projects. Eleven faculty researchers and seven others attended the meeting.

The 2009 cohort met for the final time of the spring semester on April 15. The meeting began with a presentation by researcher Dr. Sarah Hug on theories of learning. The final portion of the meeting was spent in smaller groups for discussion of each researcher's individual project. The meeting was attended by 8 researchers and 15 others including guests from the Air Force Academy in Colorado Springs who are developing a similar program.

### *Change within the Collaborative*

The intent of the PTLC and of the Carnegie Foundation to sustain this effort was to support and promote research and scholarship in aspects of learning and teaching in the disciplines. Note: the research questions are focused primarily on teaching and learning, not on the development of education research skills. The theory of change developed and nurtured in the Carnegie Foundation for the Advancement of Teaching is that through research, professors develop insight into teaching in their discipline and their students' learning. Research in pedagogy informs teaching practice and is based on data analysis. Professors then refine their teaching, their course curriculum, and how they assess student learning to design ways to specifically assess learning in units of the course. The research adds new knowledge in a specific area of pedagogy and learning, thereby contributing to the research literature while developing a community of practice.

### *Formative and Summative Evaluation Questions*

Evaluation research questions included the following:

1. How do professors best increase their understanding of pedagogy and how do students learn via participation in the PTLC program?
  - a. How does the PTLC program help professors understand their function and roles as teachers?
    - i. How does the PTLC program help professors define their role as teachers?

- ii. How does the PTLC program help professors view and understand learning and their students as learners?
    - b. How does the PTLC program help professors understand the art/science of teaching? How does the PTLC program help professors understand different instructional methods?
      - i. How does the PTLC program help professor participants improve their own instructional methods?
  2. How do professors best increase their understanding of the concepts of learning via participation in the PTLC program?
    - a. How does the PTLC program help professor participants understand their students' learning needs?
    - b. How does the PTLC program help professor participants understand different types of learning?
    - c. How does the PTLC program help professor participants understand how people learn?
  3. How do professors best improve the learning of their students via participation in the PTLC program?
    - a. How does the PTLC program support professors to improve the academic achievement of their students?

This report is organized around themes the report's authors discovered in the qualitative data with quotations drawn directly from interviews and meetings in an effort to express the PTLC participants' ideas sometimes verbatim. We will illustrate that change has occurred in professors' perspectives, perceptions, and understanding through their education research. In their own words, professors speak of how they have developed insights into their own teaching and into the assessment of student learning through their PTLC education research projects.

#### *Evaluation Method*

Qualitative and quantitative data for this evaluation have come from interviews and observations of participants in PTLC meetings. Participants were self-selected for the interviews: not all chose to be interviewed. Seventeen interviews were conducted (see Appendix for interview questions and transcripts). Data were read repeatedly and systematically allowing for themes to emerge. An effort was made to allow participant voices to tell the story of the Collaborative. Quotations, some edited for clarity, have been included in this report.

#### Relevant Findings

##### *Faculty Growth in Educational Research*

- ° Faculty researchers in the 2009 PTLC cohort are in various stages along the continuum of growth in their research on teaching and learning. Based on work by Weston and McAlpine (2001) in *New Directions for Teaching and Learning*, we find each faculty researcher in one of the three phases identified by the authors.

- **Phase One** describes researchers' growth in their own teaching and illustrates researchers who have extended their knowledge about their teaching and about their students' learning.
- **Phase Two** is defined by researchers' ongoing dialogue with colleagues about the topics teaching and learning. Here researchers are engaged in conversations with others and have become involved in collaborative work in specific topics in teaching and learning.
- In **Phase Three**, researchers have demonstrated their increased scholarly knowledge about teaching and learning through dissemination of their scholarship. They have moved beyond dialogue and have made their work public through publications and presentations.
- Based on interviews with and presentations by PTLC researchers, we have made determinations about where the 2009 faculty researchers lie along the continuum as defined by Weston and McAlpine (2001). We see 6 researchers in Phase One, 9 in Phase Two, and 6 in Phase Three this semester.
  - Last Spring, we had 7 researchers in Phase One, 8 in Phase Two, and 2 in Phase Three.
  - Our increase in faculty researchers in Phase Three is due to having a few participants who are not entirely new to the PTLC. We have three researchers from the 2008 cohort who are continuing to work with the PTLC, and we have one researcher from the 2007 cohort who has returned to work on a new scholarship of teaching endeavor. These researchers are familiar with research on teaching and learning, and all have disseminated their work in publications or at conferences.
- This report focuses on the first of two semesters of faculty researchers' involvement with the PTLC. We hope to see movement along the continuum as researchers continue to participate in scholarly teaching in their discipline.

*Impact on Teaching and Learning: The Effect of the PTLC on Education at the University*

- Faculty researchers have told us about the new perspectives on teaching and learning they have garnered through their PTLC involvement.
  - "Until very recently, I didn't even realize there was research on education. [The PLTC] has challenged me to think more about learning and learners." Janet Casagrand, CU-Boulder, Department of Integrative Physiology
  - "I absolutely have been challenged to think more about learning and teaching." Storm Gloor, UC Denver, Music and Entertainment Industry Studies
  - "As a result of being involved with the PTLC, I have found a new way of looking at teaching and learning." Shelly Miller, CU-Boulder, Department of Mechanical Engineering
- Participants have also talked about the changes they have made to their pedagogy and about changed they may make in the near future.
  - "I am trying to scale back the lecturing I am doing and get more and more interactive." Janet Casagrand, CU-Boulder, Department of Integrative Physiology
  - "I put goals for the class overall, but I have not put in explicit learning objectives, but that will probably change after this experience." Paul Chinowsky, CU-Boulder, Department of Civil, Environmental, and Architectural Engineering

- “I am also thinking about what the students need to learn to be successful later.” Chris Daniels, UC Denver, Music and Entertainment Industry Studies
- “I think I am getting better at communicating to the students what they need to learn and gain in my courses.” Storm Gloor, UC Denver, Music and Entertainment Industry Studies
- “There has been an immediate impact on my teaching. I have talked with my students a lot about creativity, and I think that has inspired my students to really work at a higher level.” Curtis Smith, CU-Colorado Springs, Visual and Performing Arts
- Many faculty researchers have undertaken projects that assess particular teaching methods. The results of their projects may lead to changes in their curriculum or teaching practices. Here are some goals of their projects.
  - “My goal is to see whether sending things by email is a viable way to teach students.” Jeffrey Druck, M. D., UC Denver, School of Medicine
  - “I want to know what the efficacy is of these mindfulness practices.” Deborah Haynes, CU-Boulder, Art and Art History
  - “If we find the simulated telephone calls are not realistic, we would revise our practice.” Brian Hemstreet, UC Denver, School of Pharmacy
  - “I want to know whether clickers work in facilitating a lab environment.” Robert Hermanson, CU-Boulder, Department of Integrative Physiology

*Impact on Faculty: The Effect of the PTLC on Research Projects*

- We asked faculty why they submitted a project proposal to the PTLC, and many commented on the structure of the PTLC. They noted that they needed the structure of regular meetings and the support of PTLC resources to engage in research on teaching and learning.
  - Many faculty researchers said they would not have pursued research on teaching and learning without the support of the PTLC.
    - “I wanted to do this project, but I am not sure it would have gotten done if I had not been accepted into the program.” Janet Casagrand, CU-Boulder, Department of Integrative Physiology
    - “I probably would not have done the research without being part of the PTLC. It is an external force that got me to actually formalize my idea.” Paul Chinowsky, CU-Boulder, Department of Civil, Environmental, and Architectural Engineering
    - “My current project is not something I can complete entirely alone.” Jeffrey Druck, M. D., UC Denver, School of Medicine
    - “The funding and the structure of the PTLC have encouraged me to work on this project. I probably would not have worked on it otherwise.” Robert Hermanson, CU-Boulder, Department of Integrative Physiology
  - Most faculty researchers have reported that they view the regular progress report meetings as beneficial and enjoyable.
    - “I look forward to bouncing ideas off other people at the regular [progress report] meetings.” Janet Casagrand, CU-Boulder, Department of Integrative Physiology
    - “I like the format of a presentation and time to talk in small groups.” Storm Gloor, UC Denver, Music and Entertainment Industry Studies

- “I enjoy meeting people and hearing about what they are doing.” Deborah Haynes, CU-Boulder, Art and Art History
- Most participants have never undertaken research on teaching and learning, and some have not completed research with human subjects before at all. The PTLC works to provide information about education research to participants, and many have noted that the resources of the PTLC fill their need for such information.
  - “Learning how to do things, like the IRB presentation at last week’s [progress report] meeting, is really helpful.” Storm Gloor, UC Denver, Music and Entertainment Industry Studies
  - “The materials and the articles in the binder, information about SOTL, and the articles that have been sent to us through email have all been really helpful.” Deborah Haynes, CU-Boulder, Art and Art History
  - “It’s been helpful to hear how people approach [educational] research.” Brian Hemstreet, UC Denver, School of Pharmacy
- One particular resource the PTLC provides is a support system of experienced researchers to guide faculty researchers in their work. We assign a coach (an experienced education researcher) and a mentor (a disciplinary expert) to each faculty researcher.
  - Some participants commented generally on the assignment of coaches and mentor to faculty researchers as a helpful resource.
    - “The opportunity to work with coach and mentor is a great thing because it’s something you wouldn’t normally do.” Paul Chinowsky, CU-Boulder, Department of Civil, Environmental, and Architectural Engineering
  - Many faculty researchers named their particular coach or mentor as someone who has been especially valuable within this research process.
    - “My mentor, Clayton Lewis [of Computer Science], has been helpful.” Paul Chinowsky, CU-Boulder, Department of Civil, Environmental, and Architectural Engineering
    - “I like working with Joni [Dunlap, of Education and Human Development] because she is outside my discipline.” Storm Gloor, UC Denver, Music and Entertainment Industry Studies
    - “Chris Turner has been involved in the process quite a bit in terms of knowing how things work within the PTLC and how to do educational research.” Brian Hemstreet, UC Denver, School of Pharmacy
- Many participants have stated that they appreciate the PTLC as a system-wide collaborative.
  - “In that first meeting, it was just so cool to meet the professors from the other campuses.” Storm Gloor, UC Denver, Music and Entertainment Industry Studies
  - “If it were a campus-based program, not as many people with educational research experience would be involved.” Brian Hemstreet, UC Denver, School of Pharmacy
  - “The system-wide aspect was one of the biggest things that attracted me to the PTLC. It stops us from navel-gazing.” Jacqueline Jones, UC Denver, School of Nursing

- “The more connections we have with people on other campuses and throughout the system, the more likely we are to sustain the work and get others to join in.” Ellen Stevens, UC Denver, Director of the Faculty Development Center, PTLC Faculty Director
- All participants have been enthusiastic about their work with the PTLC this semester. Many have expressed their enjoyment of the project and how beneficial they think their experience has been so far.
  - “I appreciate the opportunity to do this work. I am enjoying it, and I am excited about it.” Shelly Miller, CU-Boulder, Department of Mechanical Engineering
  - “I think it’s been a very valuable experience.” Wesley Nuffer, UC Denver, School of Pharmacy
  - “I am really enjoying working on this project. It’s about creativity, and it has already made me a better teacher.” Curtis Smith, CU-Colorado Springs, Visual and Performing Arts

*Recommendations: Ways to Improve the PTLC*

- Participants have expressed the need to raise awareness of the PTLC on all campuses. This awareness relates to recognition of the value of PTLC research projects in addition to wanting to encourage more faculty members to apply to be part of the Collaborative.
  - “You need more local awareness of what the program is and what its goals are.” Janet Casagrand, CU-Boulder, Department of Integrative Physiology
  - “We need to highlight and make visible what people are doing.” Kathy Andrus, CU-Colorado Springs, Director of the Teaching and Learning Center
  - “I think my one recommendation at this point is to use your current members. You could do something like ask each of them to try to have two new people apply.” Jeffrey Druck, M. D., UC Denver, School of Medicine
- Faculty researchers on the Denver campus have met together as a smaller group, and those on the Boulder campus will also meet as a smaller group.
  - “It would be nice to have just the Boulder faculty meet monthly or bi-monthly.” Paul Chinowsky, CU-Boulder, Department of Civil, Environmental, and Architectural Engineering
  - “Having a meeting on the Boulder campus would be beneficial because it would help us to establish a local community.” Janet Casagrand, CU-Boulder, Department of Integrative Physiology
- We have also received other comments about changes that could be made the various aspects of the PTLC.
  - “I think the nomenclature that is used to describe PTLC is overly academic.” Chris Daniels, UC Denver, Music and Entertainment Industry Studies
  - “Maybe you could require attendance [at progress report meetings] as part of the program.” Deborah Haynes, CU-Boulder, Art and Art History
  - “One shortcoming is that it’s really hard to conceptualize, do the [data collection] work, analyze it, and then write it up in one year.” Ellen Stevens, UC Denver, Director of the Faculty Development Center, PTLC Faculty Director

### *Disseminating Research Results*

- Participants in the Collaborative have published and presented research related to their PTLC project in a variety of settings. In addition to these publications and conference presentations, participants have disseminated information about their PTLC projects in conversations with other faculty, their department meetings, and others. The PTLC Index document contains this information in detail (see Index document). The PTLC is sustained by the success of its faculty researchers through dissemination such as publications and presentations.
- Faculty researchers have also commented on ways they hope their research projects can affect people beyond their immediate departments.
  - “I hope that faculty who are outside the field of music can read something into my work that relates to their own disciplines.” Sean McGowan, UC Denver, Music and Entertainment Industry Studies
  - “If we find these [six-week clinic experiences] make a tremendous difference, we could go to the national and international [pharmacy education] community and tell them that everyone should be doing this.” Wesley Nuffer, UC Denver, School of Pharmacy

## Discussion

### *Toward Future Directions*

- The call for proposals for the 2009 PTLC cohort contained more specific information about the commitment required to be part of the PTLC. Those who applied are committed to attending regular meetings on weekday afternoons at the UC Denver Anschutz Medical Campus. The call for proposals emphasized that faculty research projects should focus on assessing student learning so that there is no confusion about the intent of the Collaborative.
- Mentors and coaches have been encouraged to hold at least two “team meetings” each semester. The team is the faculty researcher, coach, and mentor. Thus, all three will be able to talk together about the researchers’ individual projects. These team meetings will be in addition to PTLC progress report meetings.
- Faculty researchers have produced far more publications and given more conference presentations than we are able to feature in this report. We have now created a separate document, the PTLC Index, to track information about the dissemination of PTLC research projects.
- Faculty researchers have expressed their appreciation for presentations by guest speakers at PTLC progress report meetings. In response, the PTLC has scheduled a faculty speaker for each of the 2009 progress report meetings.
- Faculty researchers appreciate receiving articles relating to the scholarship of teaching and learning. The PTLC will continue to distribute such literature and will inform the 2009 cohort of researchers how to search for similar material as part of their research.
- Researchers are requested to make a department presentation of their research in the year of their participation in the cohort.

*Conclusion*

The Carnegie Foundation for the Advancement of Teaching is under new leadership in the name of President Anthony S. Bryk. It is not known what form, if any, the Scholarship of Teaching and Learning will take at Carnegie from this point forward. It is likely that national activities of the scholarship of teaching and learning will soon reside in the International Society for the Scholarship of Teaching and Learning (ISSOTL) currently housed at Indiana University. Representatives of the PTLC and presenters have attended ISSOLT conferences for the past two years and will again in October 2009. There is a commitment, however, that the University of Colorado President's Teaching and Learning Collaborative will continue to develop and strengthen as more University of Colorado faculty participate and continue to research and publish on scholarly teaching in their disciplines. The PTLC is committed to establishing the University of Colorado as a leader in research on teaching and learning (see Appendix for PTLC Goals 2008-2011).



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**President's Teaching and Learning Collaborative**

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May 22, 2009

Provost Peg Bacon  
University of Colorado at Colorado Springs

Dear Provost Bacon,

The UCCS Faculty Assembly has with hard work and great effort achieved what none of the other CU campuses has: the expansion of the definition of scholarship for promotion and tenure to include the scholarship of teaching. The redefinition of possible areas of scholarship from which the units may choose when revising their criteria has created new possibilities for faculty work and new needs for support of that work. The President's Teaching and Learning Collaborative, which has proactively facilitated the identification, mentoring and support of CU scholars of teaching and learning over the past 4 years, is uniquely positioned to provide vigorous support for faculty carrying out this kind of research. As members of the PTLC representing this campus, we write to you today to ask your support for the continuation of the PTLC as a significant faculty development entity in the CU system.

Over the four years of the PTLC's existence, beginning before the change in UCCS promotion and tenure policy, faculty members from 4 UCCS colleges have been mentored as researchers, or have coached or mentored other faculty researchers. Our SOTL researchers are chosen through a competitive process; mathematicians, musicians, ethnographers, library specialists from our campus all compete with researchers already trained in educational theory and expert in classroom research. Proposals are chosen because they were focused on questions regarding a problem in teaching and learning that might actually have an answer. The PTLC – shepherded by Mary Ann Shea -- provides the researchers with programming and specialists who introduce them to the complexity of new research methodologies, and to the literature and language with which they need to be conversant. Then they are sent home to begin and end the task of examining an aspect of their own teaching and/or their students' learning.

Initially, President's Teaching Scholars were trained in the Carnegie Foundation program to be the mentors of the researchers. Other campus faculty members now provide mentoring along with encouragement, advice, and a steady dose of guilt to keep them on track during the short period that they receive such concentrated attention to succeed. The coaches are researchers who can answer questions about methodologies or nuts-and-bolts of data-gathering. They teach the methods of their discipline to the researchers: how to begin designing the research plan; which of the numerous learning theories to review for their hypothesis; and what statistical models to invoke. The mentoring is thus shared between managers of the research work and those who tend the fire of enthusiasm.

The coach-mentor-researcher collaboration among three campuses actually transpired in 2008 with Suzanne Macaulay as researcher, Deborah Haynes (UCB) as mentor and Rod Muth (UCD) as coach. As Mary Ann Shea once pointed out, this was an example of an exciting cross-disciplinary combination that practically extended along the Front Range and demonstrated the efficacy of working across the system when the opportunity was created.

PTLC researchers, coaches and mentors alike are modeling a process that might inform a campus process for faculty mentoring should that comes about. Certainly, one of the strengths of the collaborative is the expectation that the faculty researcher be coached by another who has already deeply involved in research methodologies and scholarly publishing of this nature, and that a mentor on campus serves as a constant sounding board for issues and ideas.

A corollary of the PTLC activities was the spring 2009 SOTL conference, "Teaching, Learning and Scholarship in the Third Millennium University," sponsored by the President's Teaching Scholars Program. Two of the six presentations at this conference were delivered by faculty members representing our campus. UCCS faculty are actively pursuing research of teaching and learning, and as such there is already a need for support of this activity. The President's Teaching and Learning Collaborative has demonstrated that inter and cross-disciplinary research opportunities are possible and necessary for the success of faculty members engaged in the scholarship of teaching and learning at UCCS. We have benefited by our participation in this endeavor and ask that you join us in supporting its continued existence.

Sincerely,

Kathryn Andrus, PhD, Director, Teaching and Learning Center

For

Prof. Tom Huber, Geography and Energy Science and President's Teaching Scholar

Prof. Suzanne Macaulay, Visual and Performing Arts, and PTLC Researcher and mentor

Prof. Allen Schoffstall, Chemistry, and PTLC Researcher

Prof. James Burkhart, Physics, and President's Teaching Scholar

Cc: Mary Ann Shea, Director, President's Teaching and Learning Collaborative



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May 25, 2009

Provost Rodrick Nairn  
University of Colorado Denver  
1380 Lawrence Street  
Denver, CO 80204

Dear Provost Nairn,

We are writing today in anticipation of your receipt of the President's Teaching and Learning Collaborative annual report as well as to give you our perceptions of the program, which has just successfully completed its third year.

As you know, the fundamental purpose of the Collaborative is to promote and support the Scholarship of Teaching and Learning (SoTL) across the University of Colorado campuses. SoTL is grounded in Boyer's work (1990) and has been guided by the work of Professor Lee Schulman and the Carnegie Foundation. While the program is officially under the aegis of the President's Teaching Scholars Program, and several Scholars participate, at UC Denver we, the undersigned, serve as program liaisons and SoTL campus advocates.

Over the last three years 23 UC Denver colleagues have participated as researchers, 9 from DDC and 14 from AMC:

- ° **Business:** Professor Kenneth Bettenhausen
- ° **Communication and Evaluation:** Professor Yvonne Kellar-Guenther
- ° **Education and Human Development:** Professor Scott Grabinger, Professor Rodney Muth
- ° **Mathematical & Statistical Sciences:** Professor Diana White
- ° **Medicine:** Professor J. John Cohen, Professor Joe Huggins, Professor Lynne Bemis, Professor Jeffrey Druck
- ° **Music and Entertainment Industry Studies:** Professor Judith Coe 1, Professor Chris Daniels, Professor Storm Gloor, Professor Sean McGowan, Professor Paul Musso
- ° **Nursing:** Professor Gail Armstrong, Professor Gayle Preheim, Professor Jane Kass-Wolff, Professor Ernestine Kotthoff-Burrell, Professor Mary Jane Rapport, Professor Cathy Thompson, Professor Jacqueline Jones
- ° **Pharmacy:** Professor Christopher Turner 1, Professor Brian Hemstreet, Professor Wesley Nuffer
- ° **Psychology:** Professor Richard Allen

The number of participants has consistently increased with several of the researchers continuing to participate past their one year commitment. In addition, 17 UC Denver colleagues have served as a coach and/or mentor to participants.

UC Denver's Strategic Priority 2—Deliver an outstanding and innovative educational experience—includes Goal 2.6, which lays out the university's responsibility towards promoting and supporting SoTL

Goal 2.6 Promote the scholarship of teaching and learning and integrate the latest research data on teaching and learning throughout the curricula at UC Denver

Objective 2.6.1 Develop a system to identify, nurture, disseminate, and reward learning innovations and good educational practices across the institution

Objective 2.6.2 Expand evidence-based systems to measure and assess educational quality and student success, and use that information to improve continuously the performance of faculty, students, residents, and fellows

Objective 2.6.3 Provide faculty development and research resources to enhance faculty scholarship of teaching and learning

Objective 2.6.4 Fund innovative pilot teaching/learning projects

Objective 2.6.5 Provide faculty development programs to strengthen the relationship between high-quality research and high-quality teaching

It is our belief that the PTLC provides a foundation upon which the UC Denver community can build a strong, vibrant core of faculty researching university teaching and learning. In addition, participation in this effort with colleagues from Boulder and Colorado Springs adds a richness that would otherwise be lacking.

We offer this report of our activities and encourage your continued support for this important catalyst.


Best regards,



Robin Michaels, PhD



Rodney Muth, PhD



Ellen Stevens, PhD

A handwritten signature in black ink, appearing to read "C. J. Turner". The signature is stylized with a long horizontal flourish at the end.

Christopher Turner, PhD

Cc: Mary Ann Shea, Director, President's Teaching and Learning Collaborative



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**President's Teaching and Learning Collaborative**

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June 2, 2009

Interim Provost Stein Sture  
Office of Academic Affairs  
University of Colorado at Boulder  
40 UCB  
Boulder CO, 80309

Dear Interim Provost Sture,

Accompanying this note you will find the annual report of the President's Teaching and Learning Collaborative (PTLC). PTLC brings together faculty from across CU to promote research on teaching and learning with goal of publishing their results. The aim is to help faculty engage in their work as teachers the same skills they bring to their research and scholarship. As you will see, Boulder faculty have been involved in 17 projects, in 13 disciplines, and have produced 25 papers and conference presentations so far.

Besides this evidence of effectiveness, I've been impressed by the eagerness with which faculty have embraced the opportunity to participate in PTLC. They welcome the chance to join a community of colleagues that focuses on the improvement of teaching. The minigrants PTLC offers, and limited travel support, are certainly valued, but the real draw is the support from colleagues.

When first proposed, PTLC received a commitment of support from then President Brown. Later the program received support from the provosts' offices on the campuses, on a per participant basis, together with smaller funding from the central administration. We're grateful for the support Phil DiStefano provided from the Boulder provost's office. We don't know that the budget situation will be going forward, in these challenging times... we hope that your office will be able to continue to support the participation of Boulder faculty in this program, one that gives tangible evidence of our institutional commitment to the improvement of teaching and learning.

Sincerely,

Clayton Lewis  
Boulder Campus Coordinator, PTLC

Cc: Philip P. DiStefano, Chancellor  
Kathleen Bollard, Associate Vice President and Academic Affairs Officer  
Mary Ann Shea, Director, President's Teaching and Learning Collaborative