

Background of CCLE

Welcome to Creating a Collaborative Learning Environment (CCLE), one of the core program experiences of the Delta Program in Research, Teaching, and Learning! We are pleased that you have set aside the time required to regularly meet with us and your colleagues to learn about learning, reflect on your teaching, and explore the campus. We hope that you find this experience stimulating and challenging and that it opens some doors that may not have been apparent to you in the past. Your involvement with this program is one of the many opportunities you have to become involved in Delta.

Throughout the year, we will help make connections between this experience and other opportunities available to you. For more information about other Delta offerings, please visit the web at www.delta.wisc.edu.

CCLE is an adaptation and combination of two programs that originated with the office Creating a Collaborative Academic Environment (CCAE). The roots of CCLE are not in education theory, but rather from Dr. Katherine Sanders Industrial Engineering dissertation in 1993. Over the years, CCLE evolved from a program in the College of Engineering to be more inclusive for anybody interested in creating a *learning community* of people interested in personally and professionally developing themselves and others as teachers.

The office of CCAC no longer exists, yet the people involved and the energy from the programs remain strong. In 2003, we adapted and merged these programs to develop a core program that brings together the three fundamental pillars of the Delta Learning Community: 1) to help you learn about learning and concepts of teaching-as-research, 2) in a learning community environment, 3) that is diverse and inclusive for people interested in exploring these issues.

The emphasis on *learning about learning* remains central to the program - the assumption being that before one can appropriately develop themselves as a teacher, they must first understand the complexities of the diverse experiences and learning processes of their students. The framework we'll use to learn about learning comes from the concept *teaching-as-research*. By approaching teaching with an eye towards research, reflection, and inquiry, we can align ourselves with the skills we have developed as researchers, but apply it to our teaching. Doing so in a cross-disciplinary, diverse community environment allows us to expand our understandings of others, and learn about the experiences, options and opportunities of others.

We understand the political issues associated with language and how it can invite people in or shut people out. We invite you to join this conversation - whether or not you have the "correct" vocabulary (e.g. education jargon, politically correct phrases). We believe you'll find the same idea expressed in a number of ways by different people throughout

the year together. So please use the language that makes you feel most comfortable, while remaining open and allowing others to do the same.

A unique approach to professional development

It might seem strange that this program was designed by, and evolved from, engineers. However, its roots in human factors engineering naturally lead to the study and design of work so that it is more satisfying, healthy, and productive for the individual and the organization. The approach we've used in the design and implementation is surprisingly unique in professional development, both in its structure (voluntary, team based, cross-generational, with weekly meetings over an entire academic year) and in its content (activities designed to draw on participant creativity and personal experiences, bringing together teaching and research, and using both verbal and visual mediums).

Typically, professional development has been focused on providing short-term skill training and techniques or resources, and has primarily focused on instruction, not learning or research. We have found that deeper changes in work and the culture of learning and teaching take place when beliefs and conceptualizations about *learning* are examined first, before jumping ahead to sampling and acquiring new techniques in teaching. With this adaptation of CCLE, the experiment now is to see what happens when we introduce a research component to strengthen the concept of teaching-as-research.

What this program is and is NOT...

CCLE is not a quick fix to higher education reform, nor is it a "Teaching Technique" program. We won't give you a list of ten pet tricks for teaching and send you on your way. What we will do is create a space for structured activities and open dialogue for reflection on learning and teaching (in that order) with a constant emphasis on reflection, inquiry, and research.

Underlying Assumptions

While we do not posit that there is "one right answer" to improve learning and teaching, there are a number of underlying assumptions in the program's philosophy. First, whether you have been teaching for many years, or are still a student, it is assumed that participants have considerable exposure to, and experience with, the traditional teaching and evaluation methods of lecture, homework assignments, class projects, midterm and final examinations. The program activities are structured to introduce you to alternative approaches to learning and teaching, by creating a non-traditional experience for you as a learner. For some of you, this will be a familiar format, for others, it might be different from your previous experiences. We hope to stimulate thought about the appropriateness and value of collaborative, constructivist, and cooperative approaches to

teaching and learning. For those of you already experienced in these methods, we hope to provide an opportunity for further reflection, extension, and application to new settings.

We have built the program on the premise that many of us learn from sharing and reflecting on individual and collective experiences as learners and teachers in a supportive community. You will also find that we ensure some voices from the research literature are heard with respect to diversity in learning, teaching, and research. We explicitly draw out those conversations, though our experience is that diversity discussions naturally arise at some level and scope even without our intentional efforts. We will also try to form teams so that there is as much diversity of background, experience, and discipline because we have found that the diversity of a group helps to ensure that the benefits of collaboration are truly evoked.

The process of CCLE

We are commonly asked (by potential participants and other people in professional development) why does this type of program require so much time? Why the weekly structure and format? Why the collaborative activities? Why the focus on consensus? Why don't you just tell us what we need to know?

We have found that the *process* of the program is as important, if not more important, than the content covered. We have experimented with a number of meeting lengths and frequencies over the past nine years, and our experience is that 1.5 hours per week results in a good balance. It is time intensive, yet do-able for people who truly are interested in exploring a complex subject, creating a common understanding, and getting to know colleagues in a deep and meaningful way.

If you are a list-type person, you can think of it with respect to "3 C's": continuity, constancy, and commitment.

Continuity: One of the most important attributes of this approach is the value of the relationships between participants and the depth of the conversations sustained over time. We have found that meetings held once or twice per month are too infrequent for relationships and conversations to develop and deepen. The issues we explore are sometimes sensitive, and we try to structure the process to create the safe environment participants need so they may open up and explore new and challenging ideas. Weekly meetings help maintain the continuity of the conversation and experience despite occasional absences. (i.e., If meetings were held once every two weeks and a participant had to miss a meeting, s/he would not be part of the conversation for an entire month.)

Constancy: By meeting weekly, these conversations become a regular part of the work week. It is not seen as an add-on to the “real” weekly duties. The constancy also models the notion that professional growth is an on-going process rather than a set of isolated experiences. It is part of working in this organization, and is seen as just as valuable as other responsibilities. The weekly meeting enables the groups to pick up where they left off without taking as much time out to refresh themselves on the progress from the previous meeting, and it makes it likely that people remember where to go, when to be there, and what to expect. A predictable schedule does not introduce ambiguity or discomfort, and allows the substance of the conversations to remain central so participants can direct their energy towards participating in the conversations.

Commitment: Significant personal and organizational change is not a short term process. Commitment to the process of remaining open, exploring new ideas, getting to know colleagues, and making meaning of new experiences is essential. It does not happen in the space of one meeting, one week, or even one semester. Insights continue to build and expand upon each other. Over time, unlearning can occur to make room for new learning. In our experience, participants who feel that learning something new is a priority for them at this point in their careers, are willing to make the time investment of weekly meetings. Without that commitment, it is typical for professional development experiences to result in short term interest with little to no sustained changes in attitudes, behaviors or values. This is not to say that people can’t or don’t benefit in some ways from shorter term experiences, or that this time commitment is necessary or desirable for every person. But this program is designed to be an intense experience that requires a larger amount of energy than other options might.

Description of program activities

The learning activities are intended to support the collaborative process and our social-constructivist perspectives. Each team will progress through the year guided by the timeline at the beginning of this book. Within this general timeline and framework, individual teams may take different paths based on differing interests, or substitute new learning experiences and materials along the way in order to best address the learning interests of the group members. We will experiment with varied types of activities and formats with different groups. We have learned that each person engages in a topic differently, so we will attempt to create experiences that can bring everyone into the activities throughout the year. The learning activities that we will use to frame the year include:

Roundtable dinners: Throughout the academic year, for one evening per month over dinner, we will have a large group gathering of anybody involved in the various Delta Teaching and Learning Community programs, activities, and courses. During these dinners, an invited guest will introduce a topic of general interest or a provocative issue

for discussion. Guiding questions will be posed to facilitate discussion at each roundtable. These are intended to be fun, festive occasions to strengthen our community and learn from others.

Selected readings: We have selected the readings in this resource book with a variety of purposes in mind. In part, we hope to expose you to different perspectives and ideas about teaching, learning, and research. The articles that we selected do not necessarily reflect our values or perspectives. Some do, some don't. We encourage you to read these with an open mind, to reflect on their meaning and messages, and decide for yourselves if and how they fit with your beliefs.

Your reflections: As we read a number of articles together, it is important that we find an effective way to share our reactions, concerns, and insights. At times, we will ask you to reflect on the readings and jot down your thoughts *before* we talk about them. Past participants have underscored the importance of these reflections, but found it difficult to find the time to write them. So, most weeks we will carve out time during the meetings for you to begin to write. The entries are not intended to be lengthy summaries or critiques of the readings. Rather, they are intended to help you center your thoughts before you forget what you've read and discussed and to give you the impetus to make connections between your teaching and learning and your practices. Some guiding questions are in the syllabus, but additional questions that you might want to reflect upon include:

What about the reading matched or reinforced what you already knew or believed?
Are you thinking differently about this topic than you were before this activity?
Did anything challenge your ideas or surprise you?
What questions did this reading prompt?

Process checks: Periodically we will take time during the weekly meetings to do a process check. These checks provide a forum for you to give feedback to the facilitator and other team members about the progress the team is making, the dynamics of the group, and things you may wish to do differently. Sometimes we may ask you to take a few minutes to write out your thoughts before sharing them with the group, while other times we will just open it up for discussion.

Individual statement of direction: Toward the end of the Fall semester, you will be asked to write a personal statement of your vision of what you would hope the student experience would be (i.e. what you want the students to experience, know, be able to do, or wonder about when they leave this institution). These statements will be shared with the team and discussed as a basis for the development of a team statement of direction.

Team statement of direction: The team statement of direction builds on the individual personal statements of direction. It is the first collaborative task, and it requires the group to reach consensus on a statement of direction for their work in the program. The activity will generate a focus for the group, which will be revisited throughout the year. Your group's statement of direction will help frame some of the discussions that will follow, with respect to learning and teaching. Please remember that this is a learning activity. It is *not* a "do-or-die" exercise, and the world does not rest on it being the "perfect" statement. You will understand what we mean when you get to this activity.

Individual learning diagram: (See the last page of this section for answers to the question, "Why do we draw?") The individual learning diagrams will be used as a basis for the group consensus diagram to be developed in the Spring semester. It requires personal reflection, use of personal experiences, synthesis of education information from early discussions, and deep thought about *how* people make meaning. You will be asked to put some thought into this individual diagram over Winter break and bring it to the first meeting of the Spring semester. The first meeting will be dedicated to individual presentations of your diagrams. The diagrams should represent the complexities of the learning process, yet remain general enough to explain learning experiences such as learning to: ride a bike, play a musical instrument, learn multiplication tables, or a foreign language. Often times people find it helpful to use a metaphor as a framework for their diagrams. Included in the diagrams should be an approximate time sequence of events (if any), contexts that help/hinder learning, and ways to address the questions: how do people forget? where do misconceptions come from? how can misconceptions be undone? how do you know when you have learned something? Again, this is a learning activity, and the process of reflection and thoughtful discussion is more important than coming up with the "perfect" diagram.

Group consensus learning diagram: (See the last page of this section for answers to the question, "Why do we draw?") Using the individual learning diagrams as a starting point, the team will collaboratively create a consensus depiction of how people learn and what might help/hinder learning. We will start by identifying common themes from each of the individual diagrams, and use these as a foundation upon which the team diagram can grow. It will take many iterations through various metaphors, tangential discussions, and scrapping old work for a new idea to arrive at consensus. We encourage you to be open and patient (we know this process can be frustrating). Ultimately, the team diagram should include all of the issues detailed in the description of the individual learning diagram, and have consensus approval from every team member.

Focus on course design: After Spring Break, you can choose to wrap up your involvement with CCLE, or continue for the remaining weeks of the semester to focus on pulling it all together into application to your particular teaching context. We will use the

learning diagram as the basis to ask the question, "How do I know where my students are in the learning process", and move to core principles, activities, and approaches to implementing all we have learned through the year. Since each person will be coming to this with different teaching contexts, this will require each of us to play dual role of presenter of individual ideas and peer reviewer of other's ideas. As you work on this course design, you will be required to synthesize new understandings of learning, and apply that knowledge in planning the course activities and objectives. We encourage you to be as creative as possible in translating your learning diagram into teaching activities/structures.

Participant Outcomes

It is difficult to anticipate what you may expect for outcomes - for each participant, the experience will be different. Our experiences in this and other related programs, however, tell us that by the end of the year, you may expect to have expanded your:

- willingness and ability to continually re-examine and articulate beliefs and conceptions about the processes by which people learn and by which you teach (*learn about learning*);
- ability to collaborate and learn from and with a group and defer to the group's best interests when reaching consensus (*learning community*);
- understanding of other people's learning and teaching experiences so you can better connect with a wider, more diverse student body (*learning-through-diversity*);
- interest to explore education literature and discuss it with colleagues from diverse backgrounds based on a common language and basic understanding of the learning process (*learning community and learning-through-diversity*);
- ability to engage in teaching-as-research to review and evaluate teaching techniques based on objectives and underlying assumptions about learning, in order to determine if a technique is appropriate for use or modification in your own classroom and/or discipline (*teaching-as-research*);
- ability to implement changes in the classroom (in pedagogy and/or content) while envisioning possible/probable student outcomes (*teaching-as-research*);
- awareness of the value of multiple and diverse approaches for the assessment of student learning and evaluation of classroom practices (*learning-through-diversity and teaching-as-research*).

Top 10 Reasons We Ask You to Draw/Construct the Learning Process

1. You can summarize/represent multiple ideas at a single glance. Visuals are a much richer format than text and can show relationships and complex interconnections much more "concisely" than pages of explanatory text.
2. Many learners are visual.
3. Visuals can show relationships that are non-linear and can show contexts for learning. They can be used to hypothesize about cause-effect relationships. (e.g., If this stage of the learning experience does not occur, what is the likely outcome?)
4. Visuals help to preserve the complexity of the issues we are discussing. Although it may not be precise or complete, it shows more naturally the complexity of the discussions held over the course of a year. It will evoke important themes and issues immediately.
5. Representing it visually requires the translation of temporal discussions into a symbolic format: the team's own conceptualization of "truth" about how learning happens. To do this, it is necessary for individuals to describe in detail which concepts are to be included, and how they might be represented. People must explain themselves fully, and in those explanations might more clearly explain concepts and relationships to themselves.
6. The task is a challenging one, requiring multiple in-depth discussions. It is well-suited for a creative group. The group creates its own language, culture and priorities through generating/discarding conceptualizations. (This is an obvious example of the social construction of knowledge!)
7. In a group of this size, it is easier (perhaps) and more fun to reach consensus on a visual representation than on precise use of text and sentence structure.
8. It encourages multiple perspectives, use of creativity, and a new way of imagining the learning process.
9. The process helps create and develop metaphors that are retained in long term memory. It is likely the images can be recalled in the future without seeing the model, as opposed to the greater difficulty in recalling pages of text.
10. Because we said so.

And finally...

We'll close by saying that we understand that teaching, learning, and research cannot be pulled apart. Our separation of them to emphasize learning first, then more explicitly bringing in teaching and research is artificial at best. However, participants have told us that this temporary demarcation is useful, and in fact, helps them step back from teaching to reconsider their ultimate goal - student learning. In doing so, we hope that you will have fun and be intellectually challenged. CCLE is intended to be stimulating, thought provoking, educational, sometimes a bit uncomfortable, and hopefully fun, all wrapped up in one program. We hope that you find it so.

Who are we?

It takes a dedicated community to pull together a program like CCLE. Many many people have had a hand in creating this program over the years. Those currently involved in the central day to day operations of Delta include:

Aaron Brower

I am a professor in Social Work here at UW-Madison. My work focuses on success and persistence in higher education and issues related to student life. In particular, I study attainment and opportunities for students who come from different ethnic groups and socio-economic classes. For the past 10 years, I have been developing "integrative learning" programs--residential and nonresidential learning communities that help students join together their interests and passions within the classroom to those outside of them. These programs help students succeed because they provide an environment for deep and challenging connections with peers and with faculty who are themselves connected to the broader university environment. Through these connections, students are able to develop both professionally and personally. As Co-Director of Delta, and as Associate Director of CIRTL, I look forward to helping our students, post-docs, and faculty develop relationships that are equally as satisfying, challenging, and professionally rewarding.

I grew up in the Chicago area, received my Ph.D. from the University of Michigan in Psychology and Social work, and my wife Nancy and I have lived in Madison since 1985. I have two teenage sons.

Chris Carlson-Dakes

My background is in Industrial Engineering, specifically Human Factors and Socio-Technical Systems. In the past, I have worked at the UW on research projects in biomechanics and physical design of tools and workplaces. As I learned more about the field of Industrial Engineering, I discovered the opportunities available for me to move

into more non-traditional areas of professional development and job design. My dissertation research was a study of how CCLE has had an effect on the organizational culture and work practices across campus and how it has had implications for changing faculty approaches to their work (teaching and non-teaching).

I'm excited to now have the opportunity to adapt the CCLE program to include a teaching-as-research component and open it up to graduate students. Working with teachers from across the campus has given me a unique opportunity to learn from a diverse group of people and share experiences to help create a healthy, safe, and fun working community for us all. The variety and flexibility I have in my work has created a wonderful balance for me where the lines are blurred between work and play. To me, that seems like the way it should be, and I feel fortunate to be a part of helping create a similar experience for others.

Don Gillian-Daniel

As Assistant Director of the Delta Program in Research, Teaching, and Learning I coordinate the Delta Internship Program. While I am relatively new to the world of providing professional development opportunities for graduate students and post-doctoral researchers, I took advantage of as many similar opportunities as I could along the way. My Ph.D. is in Cell and Molecular Biology from UW-Madison. Then my research focused on translational control in eukaryotes. I next took a post-doc and ultimately became an assistant scientist in the Biochemistry Dept. at UW where I studied cholesterol metabolism. As a post-doc I also began teaching in a course for first year veterinary students and continue to teach metabolism in the same course to this day.

In addition to my own teaching, I have been an active participant in many teaching and learning and outreach activities, among them, CCLE. My role in the Delta Program allows me to draw upon my varied experiences as I work to create exciting teaching and learning opportunities for others on this campus.

Laurel Hedlund

Kirsten Johnson

Bob Mathieu

I am a professor of astronomy at the University of Wisconsin - Madison. I've been an observational astronomer since I was 9, and now travel to mountaintops around the world to study the formation and evolution of stars. In recent years I've also been engaged in advancing STEM higher education, having helped guide the National Institute for Science Education until 1999 and now being the Director of the Center for the Integration of

Research, Teaching, and Learning. These experiences have nurtured a deep respect for colleagues in educational research, and a strong belief that better STEM higher education will derive from building bridges between research scientists and education researchers. My formal science and math education took place at Princeton and Berkeley, and my career as a Wisconsin professor has been furthered by a Presidential Young Investigator Award and a Guggenheim Fellowship.

Chris Pfund

I am currently the Associate Director of the Delta Program in Research, Teaching, and Learning and co-director of the Howard Hughes Medical Institute New Generation Program for Scientific Teaching. My background is in Cell and Molecular Biology. I earned my Ph.D. in Cell and Molecular Biology from University of Wisconsin, Madison in 2000. Subsequently, I did post-doctoral research in Plant Pathology, studying how plants defend themselves against pathogen attack. While pursuing my research, I was strongly committed to teaching and learning. I have been fortunate to have had many opportunities to teach, to be an active member of ILSE, and to have taken a leading role in many science outreach activities. My roles in the Delta Program and the HHMI New Generation Program allow me to draw upon the skills I have acquired in research, teaching and learning on this campus for the past ten years and apply them to a broader audience.

Jen Schoepke

I am a Ph.D. student in Industrial and Systems Engineering, focusing on Human Factors. I have followed a broad and diverse path in getting to this point. My undergraduate degree is Physics / Mathematics Secondary Education (Physics Emphasis) from the University of Wisconsin- Eau Claire. During this time, I worked two summers at Jet Propulsion Laboratories (JPL, NASA) on the Cassini-Huygens Mission, sending an unmanned craft to Saturn and one of its moons. I wanted to further my education in graduate school, so I enrolled in the Masters program for Manufacturing Systems Engineering (MSE). During this time, I took a human factors course in the Industrial and Systems Engineering Department and was blown away- I found my calling! So I entered the Industrial Engineering Ph.D. program. After three years, I have come full circle to education reform, specifically how racism is institutionalized within the College of Engineering at the University of Wisconsin- Madison. I started working with the Delta program at the Science House in July of 2004 and have enjoyed every minute since then!

I grew up in Muskego- a suburb of Milwaukee. I have lived in Madison for the past six years, three with my wonderful husband, Jeff, and our barky dog, Kirby. Besides being a Ph.D. student, I am an artist. I take nude figure drawing classes in my spare time; this is my 12th year of taking class. My walls are filled with artwork- mostly abstract paintings and drawings of nudes. But I have yet to sell any pictures for millions of dollars!

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