

ForwardED

The latest news from the
Wisconsin Center for Education Research
UW–Madison School of Education
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P R E - K T H R O U G H H I G H E R E D U C A T I O N

Strength in Numbers

New center improves research-mentoring relationships

A philosopher once said, “Tell me and I forget. Teach me and I may remember. Involve me and I learn.” He obviously understood the value of mentoring, as did Jo Handelsman in 2002.

Then a professor in UW–Madison’s Department of Plant Pathology, Handelsman—now the Wisconsin Institute for Discovery director—wrote a brief sentence into a grant proposal on improving faculty mentoring that more than a decade later would spark the genesis of a new project at the Wisconsin Center for Education Research in the UW–Madison School of Education.

“We should have a discussion forum for research mentors to come together and talk about how to mentor better,” wrote Handelsman. Thirteen years later, Christine Pfund, who worked closely with Handelsman to establish a legacy of optimizing research-mentoring relationships at UW–Madison, helped bring that initial idea to life. Now Pfund and her colleagues have created the Center for the Improvement of Mentored Experiences in Research (CIMER).

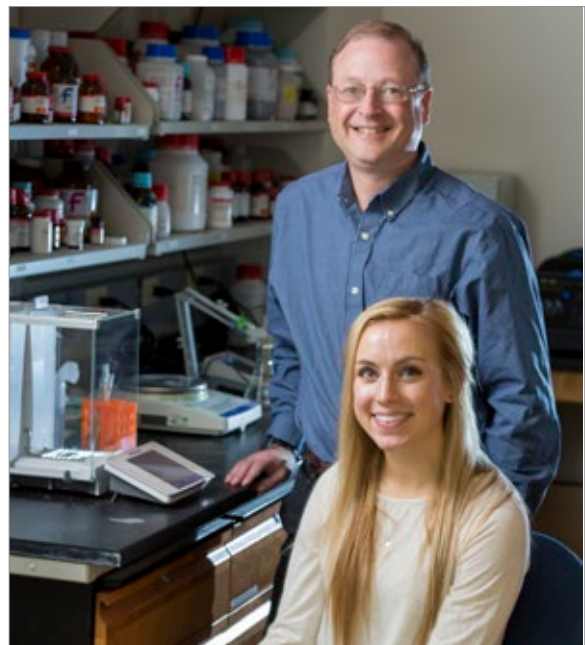
“Our goal is to explore new ways to improve research-focused mentoring relationships at all career stages in higher education, as they directly impact career satisfaction, productivity and progression,” says CIMER Director Pfund. Considered a foremost expert in the research-mentoring field, Pfund is also one of five principal investigators who established the National Research Mentoring Network (NRMN), a national collaboration of biomedical professionals and institutions that increases the diversity of scientists in research funded by the National Institutes of Health.

CIMER offers a host of customized mentoring services, such as mentor, mentee and facilitator training; curriculum development and dissemination; consulting; strategic planning; and evaluation of existing training efforts and research experiences.

Inside

Strength in Numbers	1-2
Rural Teachers Speak Out!	3
Publications/Findings From WCER Researchers	4
News	4

For an expanded version of this newsletter, visit wcer.wisc.edu/news/newsletter.



David Wassarman, a professor in UW–Madison’s Department of Medical Genetics, mentored recent graduate Julie Fischer for three years.

(Continued from page 1)

Since it first launched in 2015, CIMER has advanced the science of mentoring through collaborations with many partners in science, technology, engineering, mathematics and medicine (STEMM), including leading research-focused universities, Kaiser Permanente Division of Research and Howard Hughes Medical Institute.

According to Pfund, mentoring relationships need advancement across many research disciplines. “The research enterprise has been largely built on an apprenticeship model. There are many well-intended people doing spectacular mentoring, but it is not an equal playing field. Depending upon who you are matched with, it may work better for some than for others.”

UW–Madison has a long history of research mentor and mentee training, due in large part to the pioneering efforts of Handelsman and Pfund. In 2003, they led discussions and workshops to train future biology faculty at UW–Madison to become more effective mentors. This effort was developed into the “Entering Mentoring” training curriculum series, still taught today at UW–Madison and on hundreds of other college campuses. Pfund estimates that “Entering Mentoring” workshops have trained more than 10,000 mentors and mentees.

Wherever a baton can be passed, you likely will find a mentor/mentee relationship. Apple founder Steve Jobs was a mentor to Facebook CEO Mark Zuckerberg. Astronaut Sally Ride credits her interest in space to her graduate school professor, Arthur Walker. And Julie Fischer, a recent UW–Madison graduate in genetics and life sciences communications, owes a debt of gratitude to her mentor, David Wassarman, a professor in the university’s department of medical genetics.

“I attribute a lot of what I’ve learned and my decision to go to graduate school to David’s mentorship,” says Fischer, who was invited to join Wassarman’s lab in her sophomore year to work on traumatic brain injury research.

“Even though Julie had no research experience, I could see her passion and thought she would be a good fit,” recalls Wassarman, who mentored Fischer for three years. Under his supervision, Fischer delivered traumatic brain injuries to fruit flies using a high-impact spring-loaded device that Wassarman and colleague Professor Barry Ganetzky developed and are trying to patent.

Why fruit flies? Seventy-five percent of disease-causing genes in humans are conserved in flies, according to Wassarman. “Traumatic brain injury is a hot topic right now, with football injuries and concussions causing abnormal behaviors later in



CIMER Director Christine Pfund (right) and Leah Nell Adams (left), develop mentoring partnerships across many STEMM disciplines.

life. This is a great project for undergraduates because in just a short time, we can teach them how to inflict a brain injury on a fruit fly and then develop their own hypothesis to test.”

Fischer’s task was to determine glucose levels in the blood of newly concussed flies. Her assistance on this project earned her a byline in a paper published online. “Not every sophomore gets to be published, so it was a great experience that helped when I applied to graduate school,” recalls Fischer, who will be attending Northwestern University to pursue a doctorate in life sciences.

The new graduate recommends that every research undergraduate proactively seek out a mentor—“especially someone who is experienced in the field, like David,” she says. “What you will learn from them is invaluable.” Mentee training courses like “Entering Research,” co-developed by Pfund and Janet Branchaw, CIMER’s faculty leader of trainee initiatives, can help students find and maximize an undergraduate research experience.

It’s a win-win relationship for mentors, too. “Students push my research ahead, and I get to educate people,” says Wassarman, whose father also mentored students in his long research career at Harvard. “But the biggest benefit is watching my students grow. I get more satisfaction from that than from my research.”

Pfund hopes that with the help of CIMER, many more successful research-mentoring relationships—like the one between Wassarman and Fischer—will develop in STEMM disciplines across the country and beyond.

“Our long-term plan for CIMER is to become a highly valued and extensively used resource for optimizing and studying research-mentoring relationships, and to use that platform to promote the significance of mentoring.”



Teachers from seven rural Wisconsin school districts participated in a panel discussion at the first-ever Teacher Speakout!

Rural Teachers Speak Out

Shirley Wright had an idea. “What if we created a forum where teachers could talk directly to education researchers about challenges in the classroom?” In her capacity as the assistant to the director of the Wisconsin Center for Education Research, Wright’s job does not take her into the field, so she rarely sees the direct link between research and classroom practice.

Her interest in connecting researchers with education’s front line caught fire with colleague Kurt Brown, WCER’s senior grant editor. They also found an ally in Jennifer Seelig, a then-UW–Madison doctoral candidate specializing in rural education issues in Wisconsin. Their collaboration resulted in UW–Madison’s first-ever Teacher Speakout!

In late spring, nine elementary, middle and high school teachers from seven rural school districts in Wisconsin—Barneveld, La Farge, Markesan, Mauston, Mercer, Phillips and River Valley—gathered at the university to discuss issues that matter most to teachers working and living in rural areas. Most of the teachers were UW–Madison alums.

Nick Ehlinger was eager to participate. As a music teacher who has taught in the River Valley School District since 1999, he enjoys wearing multiple hats. He has coached high school soccer and cross country, and directed many school plays. “Even though a role may not be within your expertise, you want to give kids as much experience as possible.” However, he cautions rural teachers not to overextend themselves.

Meaghan Gustafson, a literacy specialist in the La Farge School District working on her principal’s license, believes retaining rural educators is the greatest challenge in her district. “Teacher turnover is the single biggest factor affecting the best

learning outcomes for kids.” In the last five years, she says 85 percent of the district’s teaching positions have turned over, some more than once.

Other challenges raised by the panel include a lack of funding—“We have only one AP class, that’s it,” says one teacher—and like urban school districts, there is not enough time to teach due to standardized testing overload.

Despite challenges, rural teachers enjoy the small-town connectedness with students and families. “You see them on the streets, at the gas station or in sports activities with your own kids,” says Chicago native Yvonne Butterfield, a science teacher at Mauston High School. These relationships have made her a better teacher. “When you take a more personal interest in students’ lives, they respect you more.”

More than 70 people came to the inaugural Teacher Speakout!, including education researchers, graduate students, local media and policymakers. Officials representing the state’s U.S. Senators and two state Assembly members, as well as representatives from the state’s Department of Public Instruction, Public Education Network and Rural Schools Alliance, attended and spoke one-on-one with teachers.

Seelig says this confab with policymakers was an important cornerstone to the event. “Since rural districts are distant from places where policymaking and decision-making happens, the Teacher Speakout! team felt it was an opportune moment to invite local and state legislators to interact with teachers in a casual atmosphere.”

The success of Teacher Speakout! has sparked discussions between WCER and UW–Madison’s School of Education to explore the development of a Rural Education Research Center. WCER

Director Bob Mathieu explains, “Roughly half of Wisconsin students are in rural districts. It is only right that WCER should help advance rural education. We look forward to partnering with our colleagues in rural Wisconsin, including the teachers of the inaugural Teacher Speakout!”



Legislators met one-on-one with teachers at an afternoon meet-and-greet.

Publications/Findings From WCER Researchers

“Quantitative Ethnography”

David Williamson Shaffer, a WCER game scientist, explores how to make sense of the deluge of information in the digital age through quantitative ethnography. This new science gives researchers tools to understand not just what data says, but what it tells us about the people who created it.



Education technologies improve collaborative learning in undergrad chemistry

WCER researcher Martina Rau and colleagues found that undergraduate chemistry students who used educational technology to discuss problem-solving mistakes had higher learning outcomes than students who participated in the traditional version of the lab course. This study was published in *Computers and Education*.

Accountability for recently arrived English learners

Under the federal Every Student Succeeds Act, states may offer different options for including recently arrived English learners into a state's English language arts assessment and accountability system. This paper from H. Gary Cook provides analyses, examples and guidance on how states may do this. It is a companion document to a federal report published in January 2017.



Institutional data systems limit impacts on teaching improvement

In a study published in *Project MUSE*, WCER researcher Matthew Hora and colleagues found that institutional data systems were ineffective in supporting teaching and learning. Specifically, accountability mechanisms, such as student course evaluations, were too vague and tardily reported. Many faculty created their own course-level feedback systems.

News

Encouraging constructive dialogue in classrooms

The Discussion Project, a new seminar at UW–Madison, teaches teaching staff how to get students to talk to one another in the classroom. Healthy discussions among diverse thinkers enhance learning experiences, say co-facilitators Dean Diana Hess of the School of Education and Paula McAvoy from the WCER Center for Ethics and Education.



New research center improves career readiness of college students

The Center for Research on College-Workforce Transitions was recently launched at WCER to better prepare college students for today's workforce. “Career readiness has become one of the defining issues in postsecondary education,” says CCWT Director Matthew Hora.



Video game about bias honored with national award

“Fair Play,” an experiential video game that reveals implicit bias in STEM education, received the 2017 Adolphus Toliver Award. Accepting the honor were game creator Professor Molly Carnes, director of UW–Madison's Center for Women's Health Research, and Christine Pribbenow and Percy Brown, Jr. of WCER.



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