

The POGIL Inquirer

In the Spotlight Andri Smith

*Andri Smith Honored by Quinnipiac College for Teaching
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From The POGIL Project Director



Dear Friends,

I hope that your summer has been and will continue to be restful and refreshing.

Here at The POGIL Project, we are in high gear as we are in the midst of all of our summer 3-day Regional Workshops. Thus far, this year's workshops have been exceptional, productive and invigorating, and we are looking forward to finishing up yet another successful season in the coming weeks.

We were also lucky enough to bring together some of the best POGIL practitioners in the country (and some from outside the U.S.) this past June for the annual POGIL National Meeting in St. Louis. While many important topics were discussed, I am especially excited about the new directions in which The Project is expanding to ensure that more students and educators than ever before from different social, economic and geographic environments will have the ability to use and implement POGIL in their classrooms.

As always, none of this would be possible without the incredible support we have received from all of you over the years. We hope to see you soon at an upcoming workshop or POGIL Summit to thank you in person, and we wish you a relaxing conclusion to your summer!

Richard S. Moog

POGIL Events Summer/Fall 2014

Regional Workshops

June 30-July 2	NW Regional Workshop
July 9-11	SW Regional Workshop
July 14-16	NC Regional Workshop
July 25-27	NE Regional Workshop
July 29-31	SE Regional Workshop

Other Workshops

July 14	CSTA – Intro Workshop
July 17	ICCE – Intro Workshop
July 24	Killeen Independent School District, TX
July 28	Puget Sound Area POGIL Summit
Aug. 3	BCCE
Aug. 18	Evergreen School District, WA
Aug. 19	Univ. Washington Waterworks
Aug. 20	Rutgers University

**For more information on
upcoming POGIL workshops,
visit www.pogil.org**

Ask The Mole

Q: What are some things I can do to be a better facilitator?

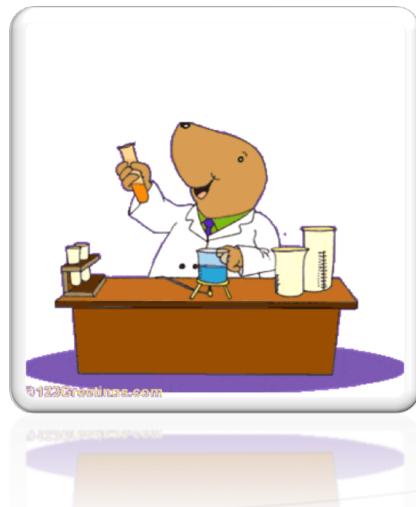
A: Several specific skills help an instructor exhibit the behaviors of a quality facilitator. A comprehensive listing is available in Vicky Minderhout and Jenny Loertscher's excellent article "Facilitation: The Role of the Instructor" (2008, American Chemical Society Symposium Series 994, pp 72-85). However, the most important skills are having the ability to listen and rephrase, asking critical questions, and recognizing emotions.

Listening and rephrasing are essential for the facilitator to discover and clarify major issues students are confronting, to assess progress of individuals and teams, to check consensus of a team, and to effectively intervene.

Asking critical questions helps students clarify and identify the relevant issues affecting learning. This skill is also important for students working within teams, giving the facilitator another opportunity to model an essential skill.

Recognizing emotions is a skill that is extremely useful, as learner-centered approaches can be difficult for some students. Facilitators need to monitor affective behaviors since significant negative emotions can impede learning. Learning to read body language is one way to effectively recognize emotions. If a problem is then identified, a facilitator can intervene before a negative situation goes too far.

If you have any questions regarding inquiry learning, POGIL materials, or any POGIL-related knowledge, email us at mdubroff@pogil.org.



POGIL National Meeting Focuses on Goal 3 of Strategic Plan



The 12th annual POGIL National Meeting took place May 31-June 3 in St. Louis, MO at Washington University. This year, the focus of the meeting was moving forward several Strategic Plan initiatives, most notably Goal 3 (increasing the diversity of the POGIL community and the students it serves.) Plenary speaker Dr. Becky Martinez (left), an organization development consultant and trainer, led two sessions focusing on diversity, while other sessions focused on operationalizing other strategic plan initiatives, such as exploring online training and finding new methods to reach new audiences. Several poster sessions were also presented, and a new POGIL SWH Lab session was rolled out. (see page 8)

Tom Greenbowe Wins George C. Pimentel Award in Chemical Education



Congratulations to Tom Greenbowe for receiving the George C. Pimentel Award in Chemical Education. This award recognizes outstanding contributions to the field of Chemical Education. Tom received his award at the 247th ACS National Meeting in Dallas in March 2014.

Greenbowe received his B.A. from the William Paterson College of New Jersey in 1972, and his M.S. in physics education from Indiana State University in 1974. After teaching science courses at the middle school and high school level, he earned his M.S. in chemistry in 1979 and his Ph.D. in chemical education in 1983 from Purdue University.

From 1983 to 1990 he was the director of freshman programs and an Associate Professor of Chemistry in the Department of Chemistry at Southeastern University. Greenbowe joined the faculty at Iowa State University in 1990 as an Associate Professor and as coordinator of the general chemistry program. He was promoted to Professor in 1998.

He works collaboratively with high school chemistry teachers, community college chemistry instructors, and university chemistry and education faculty to improve the introductory chemistry experience and curriculum. He has received grants from the National Science Foundation, the U.S. Department of Education - Funds for the Improvement of Post-Secondary Education (FIPSE), the US Wet Foundation (the DaVinci Project: Art and Chemistry), and the Dwight D. Eisenhower Science and Mathematics Improvement Fund. He has served on the 1991 and 1993 American Chemical Society General Chemistry Examinations Committee, and in 1995 served as Chair of this Committee.

Greenbowe's awards include the 2000-2001 and 1996-1997 Iowa State University, Miller Faculty Fellow Award; 1996 Iowa State University, College of Liberal Arts and Sciences Teaching Excellence Award for Introductory Courses; 1995 Lambda Chi Alpha Teacher of the Month; 1994 Wilkinson Award for outstanding undergraduate teaching, Department of Chemistry, Iowa State University; 1993 Lambda Chi Alpha Teacher of the Month.



2014 recipient Thomas J. Greenbowe (second to right) is presented his award by sponsor representative Jeanne Pimentel, wife of the late Dr. George C. Pimentel (right), Maureen Rosener (second to left), and Thomas J. Barton, ACS President (left).

The POGIL Project Seeks Nominations for its Steering Committee

The POGIL Steering Committee is currently seeking applications for new members. You are invited to submit an application or encourage someone you know to apply. Applicants should be experienced enough with The POGIL Project to be well informed about the direction of The Project as outlined in the Strategic Plan and be proficient POGIL practitioners in the classroom.

The Steering Committee guides the work of the Project by assuring the strategic plan is carried out. There are eight members on the committee, each with defined responsibilities related to one of the goals on the strategic plan. The members serve a three-year term, with two to three members rotating off each year, and new members rotating on at the POGIL National Meeting (PNM). Steering Committee members are financially compensated with a stipend by The Project during their term of service and provided the necessary travel funds to attend the two annual meetings.

New Steering Committee members are selected based on the needs of The Project at the time and the skills and knowledge that applicants can offer. These needs change from year to year so applicants should not be discouraged from applying multiple times. Although a range of experiences within the project is an advantage, it is not a requirement.

Applications will be evaluated by the current Steering Committee members according to the most pressing needs of The Project. The Project Director will choose new members based on recommendations by the current Steering Committee members. Application forms are **due September 5, 2014**. New Steering Committee members will be notified of their appointment by December 1, 2014.

All Steering Committee members will be asked to:

- Perform tasks that further the strategic plan as assigned. Typically this includes managing and guiding projects that are ongoing in the community.
- Attend two meetings in person each year: a weekend meeting in the fall in Philadelphia, and the PNM in June with additional days before and after the meeting for Steering Committee work.
- Participate in monthly conference calls with other Steering Committee members, staff members and the Project Director for updates and to discuss issues that arise throughout the year.
- Assist in the planning and implementation of Regional meetings and the PNM.

Minimum requirements:

- Applicant has attended an Advanced Workshop, or the equivalent.
- Applicant has used POGIL activities in the classroom on a regular basis for at least two years. (Note: It is not a requirement that an applicant be in the classroom currently. Retirees or persons who have moved to administrative positions are also eligible.)
- Applicant has attended at least one PNM in the past three years.

Past Steering Committee members are eligible to apply, as long as their previous term ended June 2013 or earlier.

If you are interested in receiving an application, please contact Marcy Dubroff at
marcy.dubroff@pogil.org before September 5, 2014.

In the Spotlight: Andri Smith

Smith Earns QC Center of Excellence Award



Andri Smith, associate professor of chemistry at Quinnipiac College in Hamden, CT, was recently recognized by QC's Center for Excellence in Teaching and Service to Students. The award represents Quinnipiac's highest recognition of excellence in and outside of the classroom. Below is the story that ran on QC's website

Andri Smith doesn't just want her students to learn the concepts she presents in the classroom, she wants them to own them. She works diligently to find visual and innovative methods to present complex information with the hope that students will retain the information for years to come and be able to apply it to a number of scenarios.

Smith, associate professor of chemistry in the College of Arts and Sciences, has been recognized for her efforts with Quinnipiac University's most prestigious faculty honor, the Excellence in Teaching Award.

"Professor Smith goes above and beyond to ensure that her students not only learn organic chemistry, but also have fun doing it," said senior Lauren McNickle, who completed Smith's organic chemistry course. "To help her students learn, Professor Smith uses a newer method of teaching organic chemistry, which involves using workbooks and working in groups. While using this new technique, Professor

Smith has conducted research that demonstrates her students are able to learn using this method."

Tracy Hallstead, academic specialist and coordinator of the University's peer fellow program, said she has found Smith's style to be effective.

"Andri Smith has what author Susan Cain calls 'quiet fortitude.' She does not direct learning, but rather elicits it from her students, who must take an active role in the Socratic method she employs," Hallstead said. "Dr. Smith is the chemistry professor I would have wanted when I was in college."

Smith's passion for education is evident as soon as you meet her, said Kayla Gagnon, a junior nursing major. "She will go out of her way to ensure that her students not only pass, but achieve their full potential," she said. "She constantly uses student input to ensure that every class is a comfortable environment for learning. I loved having Professor Smith as a professor freshman year, and then working with her as sophomore when I was a peer fellow for her class. You could tell that she really cares about her students and she encourages us all to achieve."

Jason Mezzancello, a junior marketing major, said Smith has made a positive impact on his collegiate career.

Continued from page 5

"Professor Smith created a friendly and comfortable environment that fostered a lot of cognitive growth in the class," he said. "She was certainly my favorite science professor I've had in my schooling here at Quinnipiac, as well as my high school."

Alexis Marsico, who completed Smith's chemistry class before becoming a peer fellow, said the lessons learned go beyond the classroom. "I have witnessed her touch the lives of the many students she comes in contact with," she said. "Watching them grow, learn and develop because of her knowledge and assistance reminds me of how fortunate I was to have such an inspirational professor. Through working with her, we have developed a relationship in which she has become a mentor to me, assisting me with achieving my personal goals. Her excellence inside and outside of the classroom makes her very deserving of this award and I am so grateful for having the chance to work with her."

Smith said she is honored to be recognized at a university with so many dedicated and talented professors. "I hope that I have had a positive impact on my students' perceptions about chemistry and that I have helped my students to apply chemical principles so that they can better understand the world around them," she said. "Many of my students tell me that they are visual learners and that they appreciate having pictures to explain concepts. I include pictures whenever possible in my handouts, and I take this a step further by bringing props--including molecular models, balls, Styrofoam swim noodles, and umbrellas--to class in order to illustrate concepts."

Through her teaching methods, Smith has changed the way students learn, said Deborah Clark, professor of biology. "Dr. Smith is always looking for better ways to help students learn chemistry," she said. "She has transformed her classroom into a place to think, not just to listen."

POGIL Books Now Available at WILEY.COM

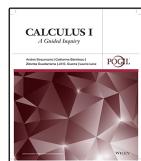
It was a bumpy start for POGIL books on the Wiley CustomSelect site, however The Project and Wiley have worked out a solution!

The POGIL Project and Wiley are happy to announce that almost all of POGIL's activity offerings are now available on the Wiley.com site. These titles include:

- *Analytical Chemistry: A Guided Inquiry Approach* (Lantz and Cole)
- *Calculus I: A Guided Inquiry* (Straumanis, Beneteau, Guadarrama, Guerra & Lenz)
- *POGIL Activities for Introductory Anatomy and Physiology* (Jensen et al.)
- *Quantum Chemistry & Spectroscopy: A Guided Inquiry* (Shepherd and Grushow)

In order to place an order for any of these books, please visit www.wiley.com. Instructor guides can also be obtained at this website.

Physical Chemistry: A Guided Inquiry / Thermodynamics (Spencer, Moog & Farrell) is still located at customselect.wiley.com.



Westminster's Helen Hu Awarded Grant to Diversify STEM Education

New computer science course designed with diversity and versatility in mind



Westminster recently received a \$285,731 grant to increase diversity in STEM (science, technology, engineering, and math) education. Computer science professor Helen Hu will use the grant to create innovative new course combinations that are designed to excite freshmen about the versatility of technology.

The Leona M. and Harry B.

Helmsley Charitable Trust and the Association of American Colleges & Universities awarded the grant to Westminster as part of a nearly \$5 million national initiative called Teaching to Increase Diversity and Equity in STEM (TIDES). The goals of TIDES are to develop and implement curricula that will enhance underrepresented STEM student interest and empower STEM faculty to adopt culturally sensitive pedagogies.

Hu will use the TIDES grant to introduce an engaging computer science course, titled Computer Science Principles, to Westminster College. This course emphasizes the creative and problem solving aspects of computer science, and is appropriate for students with no prior programming experience.

"Every student, regardless of major or career path, needs to have some basic knowledge of computer science," said Hu. "This course will help students learn which types of problems are easy for computers to solve, and which problems are difficult. That's becoming essential knowledge for anyone in the 21st century."

This new course will first be offered in Spring 2015 as part of a biology-computer science Learning Community. Westminster Learning Communities pair two traditionally different subject areas around a common theme and are a requirement for all first-year students. Students who select this new Learning Community will learn to develop apps for their Android devices while discovering how computing drives innovation in genetics and other fields.

Professors Helen Hu and Brian Avery will teach the new biology-computer science Learning Community using Process Oriented Guided Inquiry Learning (POGIL), a student-centered method that emphasizes collaboration. Rather than listening to a professor lecture about the material, Westminster students will discover biology and computer science concepts for themselves while working together on POGIL activities. The POGIL exercises include real-world applications that students can relate to.

Over the next two years, the TIDES grant will also fund the development of additional Learning Communities: a chemistry-computer science pairing in Fall 2015 and a sociology-computer science pairing in Fall 2016.

"I'm hopeful that these Learning Communities will attract a wide range of students interested in making an impact on the world," said Hu.

2014-15 POGIL Regional Coordinators

North Central Region (Formerly Great Lakes)

(IA, IL, IN, MI, MN, ND, NE, OH, SD, WI)

Audrey Armoudelein, Cranbrook Educational Community
(aarmoudlian@cranbrook.edu)

Northeast Region

(CT, DC, DE, MA, MD, NH, NJ, NY, ME, PA, RI, VT, WV)

Kris Lantzky-Eaton, St. John Fisher College

(klantzky@sjfc.edu)

Northwest Region

(AK, ID, MT, OR, WA)

Mare Sullivan, Bellevue Christian School (retired)

(joe.mare.sullivan@gmail.com)

South Central Region

(AR, KS, LA, MO, OK, TX)

Marty Perry, Ouachita Baptist University

(perrym@obu.edu)

Southeast Region

(AL, FL, GA, KY, MS, NC, SC, TN, VA)

Patrick Brown, East Tennessee State University

(brownp@etsu.edu)

Southwest Region

(AZ, CA, CO, HI, NM, NV, UT, WY)

Matt Horn, Utah Valley University

(hornma@uvu.edu)

Please contact any of the Regional Coordinators if you have any questions about events or workshops in your region.

New POGIL Video Now Online

The POGIL Project is pleased to present its new video "What is POGIL" at <https://pogil.org/about>. Can the Sundance Film Festival be far off?



POGIL Published Works

Adapting Process-Oriented Guided-Inquiry Learning (POGIL) to Family Science

T.W. Maurer

National Council on Family Relations Report 2012, 57 (20), 29-30

ABSTRACT: This project compared the learning gains from teaching Family Economics courses to undergraduate students through two methods: lecture and POGIL. Students enrolled in six sections of a Family Economics course received instruction either through lecture only or a hybrid of lecture and POGIL. Students in the three lecture sections of the course received daily lectures on the course material. The results were impressive. The hybrid group outperformed the lecture group on 60% of the assignments with a net result across all five assignments of over a half letter-grade better. Additionally, within the hybrid group, students scored significantly higher on exam questions derived from POGIL material than from lecture material at both the Remember and Apply levels. The average difference in scores was 13%, which is similar to the margin of improvement seen with POGIL in the natural sciences. Perhaps most striking were the student comments about POGIL, especially on course evaluations. Although creating POGIL materials and facilitating a POGIL classroom requires significant additional investments of time and effort, I can't argue with the results. POGIL has the possibility to be a truly transformational pedagogy in Family Science, and I encourage my colleagues to read more about it at POGIL.org or sign up for one of the low-cost regional NSF workshops designed to introduce faculty to POGIL.

Process-Oriented Guided-Inquiry Learning in Financial Literacy

T.W. Maurer

Forum for Family and Consumer Issues (2014), 19 (1)

This project describes the implementation of Process-Oriented Guided-Inquiry Learning [POGIL] in a financial literacy-themed first-year orientation course and compares the learning gains from this method vs. traditional lecture. Students enrolled in four sections of the course received instruction either through lecture or POGIL. Results revealed that controlling for pre-existing mathematical literacy, students' scores on daily quizzes, major assignments, and course examinations were not significantly different between the two methods. However, analysis of course evaluation scores revealed a strong student preference for traditional lecture. These findings are interpreted both within the context of prior research on POGIL in other disciplines and the only prior publication on POGIL in financial literacy education.

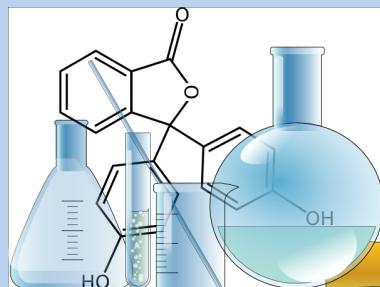
More by Trent Maurer

Maurer, T.W. (in press). Teaching financial literacy with Process-Oriented Guided-Inquiry Learning (POGIL). *Journal of Financial Education*.

New Lab/SWH Sessions Unveiled this Summer

The POGIL lab session has been updated this year so that participants now collect their own data through a computer simulation of a physical system. The goal is for participants to experience more of what students in a POGIL lab would: making predictions, collecting data, pooling the data they have collected, and drawing conclusions from that data. In addition, a new session on the Science Writing Heuristic (SWH) labs was piloted at the POGIL National Meeting. This session also uses a computer simulation to allow participants to explore an interesting system, develop beginning questions as a group, and collect the data to help answer those questions, all within the SWH framework. These sessions give participants a greater sense of what it means to be a student doing a POGIL or SWH lab and allows for greater emphasis on the differences between these lab experiences and the traditional lab experience, while retaining much of the original focus on understanding the underlying structure of POGIL and SWH labs.

For more information on these sessions, please contact Steve Gravelle (steve.gravelle@email.stvincent.edu) or Rob Whitnell (rwhitnel@guilford.edu).



Looking to Book a Workshop?

- If you would like to bring a POGIL workshop to your area, please get in touch with us! We are interested in teaching more instructors about POGIL at both the high school and post-secondary levels and want to help them make their classrooms and laboratories more student-centered.

Please visit our website and submit an event request at <https://pogil.org/contact/enter-request> or email Marcy Dubroff at mdubroff@pogil.org.



Send us your news!

We'd love to feature your news, your grant, or your video on the POGIL website and in the POGIL newsletter. Send news to Marcy Dubroff at mdubroff@pogil.org. Get all the latest POGIL news by following us on Twitter or Facebook! Sign up to get our @POGIL tweets at [@twitter.com](http://twitter.com).



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