

The POGIL Inquirer

In The Spotlight:

An-Phong Le

Florida Southern College

Page 3



From The POGIL Project Director



Dear Friends,

I hope this fall has been a good one! Here at The POGIL Project, we have been busy with a variety of initiatives that have kept our minds off the cold weather and falling leaves.

We are eagerly preparing for our second NCAPP in 2019 with a theme of Building Bridges/Breaking Barriers. The conference will feature an outstanding lineup of speakers that includes Michael Bruno, Katayoun Chamany, Sylvia Hurtado and Susan Shadle. I

hope to see you all in St. Louis June 24-26 for what promises to be an exciting and dynamic conference. We are also planning a full lineup of summer workshops around the country, and I hope you will find something to pique your interest so you can join us in 2019.

Our second semester of eSeries offerings are coming to an end and we are gearing up for a full slate of spring events, including a Mini-POGIL Experience, an Introduction to OPTIC, and Using POGIL in Large Classrooms. Please sign up for these short, informative web events early — spots fill up quickly! Watch your email for registration alerts.

As we close in on the holidays, I want to thank you all for your generosity during our recent POGIL Pledge Week. Because of your support and participation, we continue to make a profound difference in the lives of thousands of teachers and students each year.

Wishing you all a joyous holiday season.

Richard B. Moog

Upcoming Workshops

Dec. 17	University of Illinois-Urbana
Feb. 12	POGIL e-Series Mini-POGIL Experience
March 28	University of Tokyo, Japan
April 3	Williams College
March 29 - March 30	Douglas College, Vancouver, Canada
June 24-26	NCAPP, St. Louis, MO

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

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Ask The Mole

Q: What is ELIPSS and how can I use ELIPSS resources in my classroom?

A: The Enhancing Learning by Improving Process Skills in STEM (ELIPSS) Project emphasizes the need for students to *develop process skills* such as problem solving, critical thinking, communication, and teamwork alongside their content knowledge. Since students tend to focus their attention on the skills and knowledge that are assessed in a course, explicit assessment of process skills is important to obtain continuous student development.

The ELIPSS project creates and provides resources for instructors to define their expectations for and assess students' process skill development, which supports the constructive alignment of desired learning outcomes, tasks, and assessment. (1)

The ELIPSS project has developed a set of rubrics to assess and provide feedback on process skills both in student written work and in group interactions. In addition, the project developed an implementation guide to help instructors find practical ways to use the rubrics in different classroom environments. These materials are being continually refined and enhanced as they are tested in STEM disciplines at various institutions. There are currently several workshop offerings at national and regional conferences, including POGIL Regional Meetings, to help guide and support instructors with the implementation of the developed set of rubrics. The free resources and information about the workshops are available on the ELIPSS website (www.elipss.com).



1. Renee Cole, Juliette Lantz, Suzanne Ruder, Gilbert Reynders, and Courtney Stanford, "Enhancing learning by assessing more than content knowledge," Paper presented at 2018 ASEE Annual Conference & Exposition, Salt Lake City, UT. (2018) (<https://peer.asee.org/29991>)

Feel free to suggest your own topics. The more ideas we have, the happier the POGIL community will be! If you have any questions regarding inquiry learning, POGIL materials, or any POGIL-related knowledge, email us at marcy.dubroff@pogil.org

Spring 2019 eSeries Announced



This spring, The POGIL Project will offer three eSeries events. On Feb. 12, mini-POGIL Experience session will be held, with Marty Perry (St. Louis College of Pharmacy) and Megan Daschbach (Washington University) facilitating. Session 2 in March will be led by Urik Halliday (Von Steuben Metropolitan Science Center) and Shannon Wachowski (Platte Valley High School) and will feature a discussion of the OPTIC tool. Session 3 in April will be led by Tim Herzog (Weber State University) and Sally Hunnicutt (Virginia Commonwealth University) on how to implement POGIL in large classrooms. In true POGIL fashion, the online sessions will be interactive and discussion based. Registration information will be sent out via email. Each session will cost \$20. If you have suggestions about future eSeries offerings, please email Marcy Dubroff at marcy.dubroff@pogil.org.

In the Spotlight:

An-Phong Le

Florida Southern College, Lakeland, FL

Continuous desire to learn and grow sparks 2019
NCAPP Chair



How do you teach a group of students to detect and determine the quantities of chemical compounds? An-Phong Le, a co-coordinator of the Biochemistry and Molecular Biology program and Associate Professor at Florida Southern College, asked himself this question when developing his analytical chemistry course.

Soon enough, Le was introduced to POGIL. Although he adapted well to a mostly lecture-based experience during his undergraduate studies in chemical engineering at the University of Illinois at Urbana-Champaign, he understands that not everyone can be successful in a lecture-based setting. To grow his personal teaching methods, he began to incorporate POGIL activities into his courses, yet he still struggled to find a way to demonstrate and explain content in a way that emphasized a student-oriented discourse.

Looking for a way to better his implementation of POGIL, Le began attending POGIL workshops. At these workshops, Le was able to gain valuable perspectives from several other educators in a rich environment that promoted a continuous desire to learn and grow as an educator. This led to an intentional involvement with The POGIL Project, which then pushed him to volunteer for the inaugural 2017 National Conference for Advanced POGIL Practitioners.

That initial exposure to NCAAP in 2017 motivated him to implement the different ideas he gained during the conference in his classroom. He says that being in that atmosphere “was great because [he] got to meet other great and passionate practitioners” that gave him insight into successful implementation methods. Attending also helped him integrate POGIL activities into his own classroom: “it really helped my students be able to generate their own thoughts and ideas and it especially helped their thought process,” he says.

This year, Le has been chosen as the Chair of the 2019 NCAAP, with a theme of Building Bridges/Breaking Barriers. Le has shown an active and engaged presence, a commitment to POGIL, and strives for continuous growth both at a personal level and a community level. “An’s energy and enthusiasm for both POGIL and this conference are infectious and we are so excited to have his leadership as we plan the second NCAAP,” says Marcy Dubroff, Associate Director of POGIL.

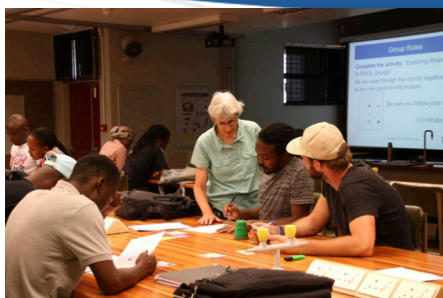
Following in the footsteps of 2017 NCAAP Chair Kristin Plessel, Le has been organizing the upcoming NCAAP since early 2018. He is excited about the theme and the slate of plenary speakers who will add to the program. “We want to build bridges between people, we want to *connect* people—professionally, socially—we want to make those connections possible,” he says.

For participants coming to the 2019 NCAAP, Le advises them to come to the conference with an open mind, to actively listen, to enthusiastically interact with other practitioners, and to try to take a strategy or two to try out in their own classrooms.

Le hopes that NCAAP will help foster connections between practitioners in order to break barriers. He says, “we want to help our community gain the tools they need to overcome barriers within the classroom, like reluctant students. We want to create a space for these connections to happen, I’m really excited for the atmosphere.”

The upcoming NCAAP will take place from June 24-26, 2019 at Washington University in St. Louis, MO. For more information, visit pogil.org/ncapp. Applications will be accepted until the conference is full.

—Marcela Pajares Berger



Caroline Lehman Describes Visit to South Africa this Fall

Last year at the POGIL session held at the ACS meeting in San Francisco, I met Dr. Kgadi Mathabathe, an energetic young assistant professor of science education from the University of Pretoria. She is also a Mandela-Washington Fellow and was eligible for IREX funds for someone from the U.S. to travel to South Africa. We applied for and got the grant! It was a very full and exciting 18 days. In all of the workshops, the participants enthusiastically embraced the notion of being actively engaged in learning. Workshops included pre-service science teachers studying at the University of Pretoria, Science and Math Education Faculty at University of Pretoria, and a two-day workshop for a group of 28 science teachers from Gauteng Province at a township school outside of Pretoria.

In South African secondary schools, the norm is 40 -50 students in classrooms with the teachers doing most of the talking from the front of the room. POGIL represents a big change! We certainly created strong bonds and stimulated real interest in collaborative, inquiry-based learning. We used the IREX funds to provide the teachers with a laminated classroom set of group roles and process skills, as well as POGIL chemistry activities so they could get started!! And it has already begun! There is an active WhatsApp group and one teacher already tried out one of the POGIL activities.

I also went to a community center in Soweto, Kliptown Youth Programme and introduced POGIL to the young tutors there. They too were very positive about using POGIL methods.

We hope is that one or two of this group of teachers, together with Dr. Mathabathe and her Ph.D. student, Mr. Mamombe, will be able to come to the U.S. next year to participate in one of the 3- day summer workshops.

— Caroline Lehman

Summer Workshop Sites Selected

The POGIL Project is excited to announce its Summer 2019 Workshop Lineup. More information on the workshops, such as pricing and registration info, will be announced in January. Keep an eye out on POGIL.org for more information. In the meantime, mark your calendars!

POGIL National Meeting

June 1-4

Washington University
St. Louis, MO

Accepting Applications at

<https://docs.google.com/forms/d/e/1FAIpQLSdYNWR28xuTF7HHLiKn9XEE-Uc4NuyDdW2cHDMvnpqXUDfppXA/viewform?vc=0&c=0&w=0>

NCAPP

June 23-26

Washington University
St. Louis, MO

Accepting applications at

<https://docs.google.com/forms/d/e/1FAIpQLScvNnOObjv0jD-6Y00sbEWPXJ6XdAIXJNEYdQwwyFBZKnhYHw/viewform?c=0&w=1>

July 16-18

Simmons College
Boston, MA

July 22-24

Capital University
Columbus, OH

July 23-25

Vanguard University
Costa Mesa, CA

July 30-August 1

Lewis & Clark University
Portland, OR

Writers' Retreat

July 29-August 1

Johns Hopkins University
Baltimore, MD



June 24-26, 2019

Washington University in St. Louis

At the inaugural NCAPP in 2017, more than 90 experienced practitioners gathered from across the country (and across the world!) to share their ideas and experiences of implementing POGIL in a wide range of classroom settings and disciplines. This highly interactive conference designed by and for advanced POGIL practitioners, saw instructors find solutions to vexing problems and discover new ideas and techniques to try in their classes. Those who attended all left inspired by the ingenuity and passion of their colleagues.

NCAPP 2019 will build on this foundation to create an environment where advanced practitioners can connect with peers to gain insight into effective teaching and facilitation, and practitioners will be able to share and find new activities and approaches for the classroom and the laboratory, and establish collaborations over shared interests.

NCAPP welcomes instructors at all levels from any content area. While POGIL began in the STEM fields, the pedagogy and strategies for developing and implementing POGIL are applicable across many disciplines and classrooms.

We hope that you will join us at NCAPP 2019 to share your insights, expertise, and experience. Together, we will sustain a community of transformative educators committed to improving learning for every student, everywhere.

Building Bridges

Foster connections among participants across institutions and disciplines to create a supportive, inclusive community of transformational educators.

Breaking Barriers

Address obstacles to collaborative learning and identify strategies to improve the classroom experience for all students

This conference is designed for POGIL practitioners to gather together and share ideas, challenges, and struggles regarding the use of POGIL in their classrooms. The format will include various types of participant-centered sessions where practitioners will be able to share their ideas for new POGIL activities, explore challenges related to using the POGIL format, and work with other others to design new POGIL activities or methods of implementation.

Participants will come away with new ideas for POGIL activities as well as new strategies for implementing POGIL.

Another purpose of the conference is to serve our growing population of practitioners, including teachers from a wide range of disciplines at all levels, and who serve minorities and underrepresented groups. All participants will be seeking ways to use POGIL to improve or enhance student learning in their fields.

For more information, visit <https://pogil.org/ncapp>

To apply, visit <https://docs.google.com/forms/d/e/1FAIpQLScvNnOObjv0JD-6Y00sbEWPXJ6XdAIXJNEYdQwwyFBZKnHYHw/viewform?c=0&w=1>

POGIL Published Works

Promoting Nursing Students' Chemistry Success in a Collegiate Active Learning Environment: "If I Have Hope, I Will Try Harder"

Andri L. Smith, Jean R. Paddock, Joel M. Vaughan, David W. Parkin

The challenge in chemistry courses for non-science majors (such as nursing majors) is not that the students cannot learn chemistry but that they *think* they cannot learn chemistry. With this in mind, the authors' goal was to create a learning environment in which students would feel motivated to learn and would gain confidence in their ability to learn chemistry. In the one-semester chemistry courses for nursing majors described here, health-related scenarios (such as IV therapy, diabetes, blood chemistry, and brachytherapy) provide context, and POGIL activities provide process and content in a cooperative learning environment. In addition, strategic organization and alignment of learning outcomes helps students to focus on the concepts, principles, and theories that they are expected to learn in a meaningful way. Also essential for the success of this course is a caring yet rigorous instructor who effectively communicates that learning chemistry is difficult but doable. This combination of health-related scenarios, POGIL activities, clear learning outcomes, and a supportive instructor gives students hope that they will succeed in their introductory chemistry course and increases their self-concept in chemistry. Chemistry Self-Concept Inventory data collected during 10 semesters at two different universities show a significant positive increase in our students' chemistry self-concept. Furthermore, Student Assessment of their Learning Gains data collected during the same time period show that students find this learning environment conducive to learning.

<https://pubs.acs.org/doi/10.1021/acs.jchemed.8b00201>

Building a Community of Transformation and a Social Network Analysis of the POGIL Project

Susan E. Shadle, Yujuan Liu, Jennifer E. Lewis, Vicky Minderhout

Communities of transformation work to achieve deep, transformational change in higher education teaching practice. This case study of The POGIL Project follows the development of a community of transformation principally focused on the propagation of effective teaching in STEM. We describe the origin of the community, elucidate the emergent decisions that shaped its growth, and offer a social network analysis of the connections between change agents that have been deeply engaged in the growth and development of the POGIL community. The case provides concrete examples of how the features of a community of transformation, most particularly the community network, can be intentionally fostered. We discuss the implications for STEM education reform in light of the case analysis.

Building a Community of Transformation and a Social Network Analysis of the POGIL Project | Request PDF. Available from: https://www.researchgate.net/publication/328078694_Building_a_Community_of_Transformation_and_a_Social_Network_Analysis_of_the_POGIL_Project [accessed Oct 18 2018].

Promoting Critical Thinking and Problem Solving Skills of Preservice Elementary Teachers through Process-Oriented Guided-Inquiry Learning (POGIL)

Irwanto, Anip Dwi Saputro, Eli Rohaeti, A.K. Prodjosantoso

In the context of 21st century learning, lecturers encounter complex challenges in optimizing learning processes and outcomes. The previous research reports that teaching method is considered as the right solution to overcome that problem. This quasi-experimental research aims to: 1) explore the difference between Critical Thinking Skills (CTS) and Problem Solving Skills (PSS) among preservice elementary teachers taught by using POGIL and traditional lecture, and 2) analyze the correlational strength between CTS and PSS. Both groups were chosen by using cluster random sampling. This research was conducted at the Universitas Muhammadiyah Ponorogo, Indonesia, involving 48 participants in the academic year 2017/2018. The CTS Essay Test was adapted from Ennis (2011) and the PSS Essay Test was adapted from Polya (1957), face validity was conducted by the experts, and obtained reliability coefficient of .88 and .89 respectively. The data were analyzed by using Mann-Whitney U-test and Spearman's rho correlation at the significance level of .05. The results show that: 1) there is a significant difference in CTS and PSS among experimental and control groups in favour of experimental group students, and 2) there is a high positive and significant correlation between both dependent variables. We recommend that lecturers need to improve students' higher-order thinking skills by using POGIL.

<https://files.eric.ed.gov/fulltext/EJ1191708.pdf>

Fundamental nursing: process-oriented guided-inquiry learning (POGIL)

Maureen C. Roller

Measuring the effect of a Process-Oriented Guided-Inquiry Learning (POGIL) implementation in a fundamental baccalaureate-nursing course is one way to determine its effectiveness. To date, the use of POGIL from a research perspective in fundamental nursing has not been documented in the literature. The purpose of the study was to measure the effects of participation in the POGIL process in Fundamental Nursing classes on the final grades and ATi (Assessment Technologies Institute, LLC) grades (national exam) of groups of students who participated in group scenario work compared to students who did not participate in group scenario work in class. A comparative quantitative design measured the relationship of grades in two fundamental nursing classes taught by the same professor. The results demonstrated a short-term implementation of a POGIL program could increase grade performance significantly on a standardized exam. Final exam data revealed no significance in grade performance between groups. Utilizing the POGIL method may be beneficial in nursing courses.

<https://eric.ed.gov/?id=EJ1080678>

Strategic Plan Updates...

Local Networks Continue to Grow

Building upon the National Conference for Advanced POGIL Practitioners, members of The Project have embarked on a mission to build community at a local level. Two working groups have contributed to the effort of creating local communities that push for continuous learning and growth. One of these teams developed the POGIL eSeries, an online approach to providing professional development that just finished its first successful year. The other team, led by Tim Herzog and Steve Gravelle, is the Local Network initiative.

Based on the need for local communities, the goal of the Local Network initiative is to develop and evaluate best practices and approaches to building and supporting local teams of POGIL practitioners. To achieve this, the group has created a variety of resources for local teams to use as templates so that they can craft their own events, outreach, and mentoring programs.

The Local Network initiative spent the past year piloting these resources with a few targeted local teams. In 2018, local leaders in four areas across the U.S. worked to build active local communities of POGIL practitioners in Puget Sound, WA; Long Island, N.Y.; Chicago, IL; and Los Angeles, CA. These teams successfully ran POGIL summits, established mentoring programs, set up professional development opportunities, and reached out to new and existing practitioners in their areas.

The group believes that strong local communities positively impact the sense of community at a national level. This allows for progress and growth for the POGIL Project as a whole while simultaneously contributing to the growth of practitioners and local communities. The Local Network initiative hopes to expand its group of regions to eight in the coming year.

—Tim Herzog

Revamping Fundamentals of POGIL

After observing the way in which students work with POGIL activities, it is clear that there is a need for a more productive way to intently involve students in the activities to gain more than just content. As a result, an ongoing revamp of the Fundamentals of POGIL that concentrates on the development of process skills is underway.

The team in charge of this initiative has discussed how to improve the role of facilitators as efficient educators who should accurately know the process and content goal of POGIL activities. They believe the role of facilitators should be to create the platform for specific and crucial learning moments that enable efficient learning and actively take part in information processing through which they acknowledge and reiterate the information from POGIL models.

With more efficient techniques for facilitators, students are able to gain a better and deeper understanding of material. Efficient activities, efficient presentation, and efficient guidance of POGIL activities allow students to learn at two levels—content and skill. The goal is for students to be comfortable and knowledgeable of the content presented and also gain useful inquiry and critical thinking skills.

In the process of this change, the team also acknowledges that the models being used aren't the exemplars needed to reach the goal of efficient presentation and learning. It is difficult for participants outside of the STEM field to actively engage and prevent frustration when the content is unfamiliar to them. For the revamp, the team is creating models and activities that are both within and outside of chemistry to help create a more diverse community.

In addition to an emphasis on process skills for facilitators and the revamp of POGIL activities, the team has also started reworking the writing and facilitation tracks. This revamp will take place over the next few years.

—Laura Trout

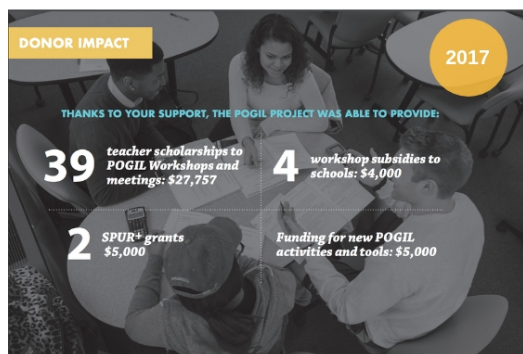
Thank You for a Great POGIL Pledge Week!

We are deeply grateful to everyone who gave so generously during POGIL Pledge Week. Your ongoing support helps keep the workshops, scholarships, and materials coming, AND helps keep the lights on! It was our best Pledge Week ever, with a total of \$37,518 in donations--exceeding last year's gifts by nearly \$10,000!

This year, we also had a special donor match. An anonymous donor offered to match gifts from first-time donors (up to \$1500), and we had 15 new donors who gave a total of \$971—all matched 100 percent! We want to send a special thank you to our match donor and a warm welcome to all of our first-time donors!

All year, you give of your time, your treasure, and your hearts to make it possible for every student to experience an education that prepares them to think critically, solve problems, work with others, and experience the joy of discovery.

To all of you who give so much, you are truly our heroes and we thank you from the bottom of our hearts. We couldn't do it without you!



VISIT THE POGIL STORE

Need to get a water bottle to stay hydrated? Visit the POGIL online store at

<http://store.apexadv.com/pogil/>

And while you're at it, pick up a Keep Calm and POGIL On T-shirt as well!



Kudos!

Elizabeth Jensen, Professor of Chemistry and Chairperson, Aquinas College, was honored with the *Outstanding Teacher Award* announced by the college president.

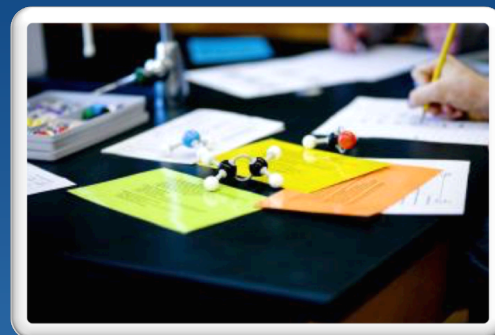
Laura Lavine, Associate Director of the Agricultural Research Center at Washington State University, was promoted to Chair, Department of Entomology, at Washington State University.

We are excited to announce that the **National Center for Women & Information Technology (NCWIT)** has recognized The POGIL Project with the EngageCSEdu Engagement Excellence Award, on behalf of J, Associate Professor of Computer Science at Muhlenberg College. Clif was recently honored with the 2018 NCWIT Excellence Award for “outstanding curricular materials that demonstrate not only excellence in CS content and pedagogy, but utilize research-based engagement practices to make computer science relevant and meaningful for students.” To our great surprise and delight, NCWIT notified us that Clif had shared his award with The POGIL Project in recognition of our contributions to his work. We are deeply grateful to NCWIT and Clif for this award.

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 a request a workshop form or email Marcy Dubroff at marcy.dubroff@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 marcy.dubroff@pogil.org

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The POGIL Project

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