

ON TEACHING

Office of Instructional Development

Writing Across the Curriculum

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A wise teacher makes learning a joy.

— *Proverb*

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An Alternative to Lecture: Process Oriented Guided Inquiry Learning

Julie K. Abrahamson, Chemistry

Unlike teachers in primary or secondary education, those in higher education often have had no expectation of formal teaching related coursework. Those who teach in the university setting commonly use the method by which they learned, namely the traditional lecture. At a large university such as UND, there are also the challenges presented by large numbers and diverse abilities among our students. Those who consider ways to improve the methods by which we reach our students are reminded that students learn best when actively engaged rather than passively listening.

One alternative to lecture, which uses constructivist learning strategies, is **Process Oriented Guided Inquiry Learning** (POGIL), to which I was introduced at an NSF-sponsored workshop in 2006. In addition to actively engaging with course material, students using POGIL develop process skills that are applicable to many areas of learning, such as problem solving, teamwork, communicating, management, and assessment.

How does a POGIL classroom work? Students work together in groups of three to four on an exercise, for the class period. Concepts are presented in worksheet style exercises using models, tables, diagrams, or in paragraph form, and then followed by guiding questions to prompt students to make important observations or descriptions of patterns. Students are asked to discuss questions among the group, helping each other to clarify uncertainties, and come to common conclusions. If the group comes upon a question that they cannot adequately resolve, they are to ask for help from the instructor, who becomes more a facilitator of learning, rather than a conduit of facts.

In order to create some structure in the groups, each group member is assigned a role for that class period. The **Manager** is to keep the group on task, be sure all are contributing efforts, and raises a hand to ask for assistance when they have a question. Another group role is the **Presenter**, the one to be called upon when the instructor needs to have a discussion among all the groups. The **Recorder** completes a Recorder's Report to be turned in for the group, including various things specified by the instructor, such as important concepts learned, questions for further discussion, or answers to specific parts of the activity, among many possibilities. To ensure some measure of self-assessment by the group, a **Reflector** or **Strategy Analyst** adds observations about group interactions to the Report. Group roles are intended to be different each class meeting, so that each student gets the opportunity to participate in all capacities.

Before a POGIL activity begins, I outline topics to be covered, highlight recent concepts that will be used that day, or briefly point out important things to note in the activity. Periodically during the activity, I ask Presenters to contribute to a discussion of key or troublesome questions, for example by giving the answer for their group. At the end of the class period, I focus the students' attention on a summary of the important concepts presented.

I have used POGIL periodically in freshman level chemistry courses for the past two years. This creates a dramatically different classroom atmosphere in classes of 100-200 students. Instead of quietly listening and attempting to transcribe every precious word from the instructor's lecture, the

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OID Online: Announcing the Teaching Thursday Blog

We know you are thinking about your teaching every day of the week and we hope that when you do you will join us in the blogosphere for our new venture, Teaching Thursday (available at www.teachingthursday.org). Every Thursday there is a new post on some aspect of teaching, and there is lots of room for your voice to join the conversation. So far we've ranged from our identity as teachers to student grade expectations. It looks like EduPunk is next on the agenda. Curious? Then get online and dive in. And let us know (via email at teachingthursday@gmail.com) if you have a topic you'd like us to focus on -- we are looking forward to your input!

While you are online, remember to check out the Models of Innovative & Best Practices in Teaching & Learning at UND under the "Programs" link on the OID website (oid@und.edu). UND faculty developed these effective and/or innovative teaching and learning strategies for our students. You'll want to start by looking at the cover sheet for each practice which gives a brief synopsis, as well as a description of the kinds of students (freshmen/majors/grads, etc.), courses, and learning environments to which each approach is best suited. You'll also find a handout that give details on how to implement the strategies. Here is a sample of the various classroom strategies posted: "In-Class Writing Assignments and Unannounced Peer Reviews," "Using On-Line Quizzes to Encourage Students to Read their Text-book," "How to Manage Interactive and Feedback Strategies in 'Mass Classes,'" and "I Don't Care What You Think, I Care How You Think: Facilitating Dialogue on Difficult Issues." And in the next newsletter, check for a call for this year's proposals

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students are actively working, talking among themselves, and interacting with the instructor on a much more individual basis than would ordinarily be feasible. With large lecture sections and 25 – 40 groups in the lecture hall, I have recruited and trained undergraduates who were strong students in their freshman chemistry courses as co-facilitators, allowing for much easier access to answers to questions. In some cases, the teaching assistants have used POGIL activities in the laboratory sessions, where the numbers are much smaller and more easily managed.

As the instructor, I find POGIL brings a welcome change of pace to my courses. Although I could happily lecture on the topics of each course, it is far more rewarding to see students actively working during class. I actually get the opportunity to respond to individual students as questions are raised. Rather than straining their short attention spans, or fighting the consequences of inadequate sleep in soft chairs of a quiet lecture hall, students interact with one another and with the facilitators as they explore the challenges of each activity. The range of student abilities in each class provides a range of those to explain what they understand to those who need help with the concepts. Using POGIL is an approach that allows the students to explore topics and create their own ideas before being told what the definitions should be, or what term a phenomenon is given in this discipline.

I have asked students to note on the Recorder's Report which process skills are used in an activity. This prompts them to consider whether they have used communication, teamwork, problem-solving, assessment, learning, thinking, or management skills in their groups. My impression is that these prompts remind them of the important aspects of group work.

Student reactions to POGIL have been varied. There is the inevitable resistance to all things new, and to students having to think on their own. Insightful students have commented about how POGIL helps them to understand the material better. In general, I have seen good participation with the activities in class. One must contrast this to the smaller fraction of students actively thinking during a normal lecture period. They seem to enjoy the social aspects of group work, and one has to occasionally motivate them to stay on task. Asking them to be ready to discuss a particular question after a set number of minutes can encourage them to stay focused. Preparing the students with an introduction, and summarizing the concepts at the conclusion, are important aspects of a successful POGIL activity.

POGIL can be used in a wide variety of disciplines, but has been developed in the sciences, both at the college and high school levels. After learning in detail about POGIL, I was convinced this was something I needed to implement. There is a current NSF project that sponsors workshops to introduce and promote the use of POGIL across the country at no cost to the participants. One workshop will be hosted by UND, **Saturday, April 25, at the Memorial Union**. Registration is open to interested individuals through the website, www.pogil.org/events/intro_workshops.php beginning in early March, until the capacity is reached. UND faculty members, graduate students with an interest in teaching, as well as other educators in our region are encouraged to take advantage of this local opportunity. The workshop is sponsored by the POGIL project, which is partially supported by the National Science Foundation. Partial support for the UND workshop will be provided by the Red River Valley Section of the American Chemical Society, UND Chemistry Department and the Office of Instructional Development. More information and links to resources are available at www.pogil.org.

Faculty Can Receive Feedback on Teaching

It's not too late to make plans to use the SGID (Small Group Instructional Diagnosis) method for receiving midterm feedback from students in your classes. The SGID process, facilitated by a trained faculty colleague, is a method of soliciting student perceptions about the progress of their learning. Since it is conducted by an outsider to your class, students are free to be direct, but since it is normally done around mid-semester, you receive the feedback at a time when there is still ample opportunity for you to consider any changes that might improve student learning. The SGID process is flexible enough to be used with both large and small classes, and yields information likely to be useful to both beginning and experienced faculty.

For more information about the SGID processor or if you would like to request an SGID, contact Jana Hollands at 777-4998 or jana_hollands@und.nodak.edu.

Writing Center Services

The Writing Center encourages faculty to invite students from every discipline to meet with our trained tutors to work on their writing. Writing Center tutors are able to work with students on writing projects in every stage of the drafting process- from finding a way to get started to helping students edit their work, and everything in-between. The Writing Center staff is also happy to meet with graduate students and faculty on their writing projects.

The Writing Center is open:

Monday through Friday 10:00 a.m. - 4:00 p.m.

Monday through Thursday 7:00 p.m. - 9:00 p.m.

Sunday 1:00 p.m. - 3:00 p.m.

The easiest way for your students to sign up for a thirty minute session is by using our online scheduling software at our website: www.und.nodak.edu/dept/wac or click "W" for Writing Center on the UND homepage's A-Z index, follow the prompts on the left side to schedule an appointment. Appointments are strongly advised at any time and are *absolutely necessary* at busy times of the semester, so please let your students know to plan ahead. Your students will also find PDF handouts on our website to download on topics such: APA, MLA, Turabian, plagiarism, rewriting and editing, and internet sources.

If you wish to speak to someone in the center by phone, please call 777-2795, or by e-mail: writing.center@und.edu or if you have questions about the services available through the Writing Center, or would like brochures for your students, please contact Shane at shanewinterhalter@mail.und.nodak.edu or 777-6381 or Jana at jana_hollands@und.nodak.edu or 777-3600.

On Teaching Lunch Seminar Series

Spring 2009

Thurs., April 9 (12:30-1:30)

Practical Strategies for Improving Student Writing at UND

Wed., April 22 (12-1)

The fourth in our Teaching with Technology Faculty Seminar Series: Using Video Projects to Promote Student Learning

Join us for these informal lunch-time discussion on teaching-related topics of interest to faculty in all disciplines. All sessions take place in the River Valley Room of the Union.

Wednesday sessions run from 12-1. Tuesday and Thursday sessions run from 12:30-1:30.

To register and reserve a lunch, please call Jana Hollands at 777-4998
or email: jana_hollands@und.nodak.edu

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Upcoming Events & Deadlines

April 1	Summer Mini-Project Grant Proposals due (noon) FIDC Travel and Materials Grant Deadline (noon) Teaching with Technology Workshop applications due
April 25	POGIL Workshop
May 1	Follow up Workshop on Significant Course Design applications due FIDC Travel and Materials Grant Deadline (noon)*
	*Should include all travel and materials requests through Aug. 30 (The next FIDC deadline is Sept. 1)

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Director: Anne Kelsch. Editor: Shane Winterhalter. OID/UWP Staff: Jeanne Boppre and Jana Hollands.

Summer Opportunities

Summer Mini-Project Grant Proposals are due by noon on April 1, 2009.

Each year, the Office of Instructional Development and the Faculty Instructional Development Committee (FIDC) fund a number of Summer Mini-Project Grants designed to support faculty working on significant teaching/assessment projects that go beyond normal course preparation and can be completed in 1-2 weeks of full-time effort during the summer. Projects may relate to individual classes or to department/program needs (for example designing a major class project, assembling web-based resources for a class or program, or analyzing data collected in conjunction with the department's assessment plan). Grants range from \$750-\$1500, depending on the size of the project, and are paid as salary stipends. Applicants are expected to meet university guidelines regarding payment for faculty overload. (Note: Because of funding restrictions, work on Mini-Projects must be done before the end of the fiscal year, June 30.) The Faculty Instructional Development Committee (FIDC) reviews Mini-Project Grant proposals.

Summer Workshops

In collaboration with Writing Across the Curriculum (WAC) and the Center for Learning and Instructional Technology (CILT), OID is offering several one and two week summer workshops on teaching-related topics. You'll find the full information for each workshop online by going to the OID website (oid@und.edu) and following the "Programs" link to "Summer Workshops."

Teaching with Technology Workshop

May 18, 19, 20, 21, 26 & 27 from 8:30 - 12:00

This 6 day seminar/workshop sponsored by OID and facilitated by CILT is designed for faculty interested in using technology to enhance traditional classroom teaching. This includes those who are just getting started using technology, those who are thinking about using it, and those who have used it in limited ways but want to reconsider how they are using it. In this context, "technology" includes such things as course web sites (Blackboard), web research projects, tutorials and animations, social software (wikis, blogs, and journals), "clickers" (audience response system), SecondLife, podcasting and other audio and video enhancements. Registration is limited to 10 faculty, and a \$500 stipend is offered. The application deadline is April 1, 2009.

Follow up Workshop on Significant Course Design

May 19, 20 & 21 from 1- 4

This three afternoon workshop facilitated by Anne Kelsch and Joan Hawthorne is a follow up offered for faculty who participated in the Creating Significant Learning Through Integrated Course Design Workshop in February and would like an opportunity to continue the work they began. The sessions will focus on articulating student learning outcomes and designing assignments that advance those outcomes and assessments that gauge them. Participants will receive complimentary copies of books on classroom assessment techniques and rubric design. The application deadline is May 1, 2009.

Extended WAC Workshop

June 16, 17, 18, 19, 22, & 23 from 1:00-4:30

A six-session afternoon workshop on Writing Across the Curriculum will be offered for faculty in June. This workshop is designed to enable faculty to focus intensively, and in collaboration with colleagues from across campus, on developing or redeveloping the writing component of a particular course or course sequence. Up to 10 faculty can be accommodated in this workshop, and participating faculty will receive stipends of \$600 (subject to standard deductions).