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focus

on university teaching and learning

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From the Director

Renewed attention to the “teaching-research nexus” underlines the essential role of inquiry across the academic enterprise. In this issue of *Focus*, colleagues from diverse disciplines illustrate how they foster the development of their students’ research skills in contexts ranging from research experiences for individual students to learning experiences involving entire classes.



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Inspiring Minds

Making Explicit the Implicit: Defining Undergraduate Research*

by Mary Beckman, University of Notre Dame
and Nancy Hensel, Council on Undergraduate Research

The Carnegie Academy for the Scholarship of Teaching and Learning (CASTL) identified undergraduate research as one of the themes for its 2006-09 CASTL Leadership Program, and nine institutions in the United States, Canada, and the United Kingdom, as well as the Council on Undergraduate Research (CUR), were chosen to participate in the three-year project.

At the first meeting of the group, in October 2006, representatives from the participating institutions gathered in Washington, D.C., to discuss the definition, purpose, and benefits of undergraduate research. They also discussed ways in which the impact of undergraduate research on students could be assessed. Several of the participants agreed to return to their institutions and either review their current definition of undergraduate research or develop a definition.

In June 2007, the group met again at the University of Alberta, where the discussion began with consideration of the definitions of undergraduate research used

by the participating institutions. Because several institutions had begun formulation of their own definitions by referring to the definition developed by the Council on Undergraduate Research, participants first reviewed the CUR definition: “An inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline (www.cur.org).”

Our hope was to glean commonalities and then formulate our own working definition that could be used by the CASTL Undergraduate Research Team. After establishing a working definition, the team would be in a position to consider how one would be able to recognize high-quality research, which was the ultimate aim of the CASTL Team. Instead of moving quickly to common ground, however, discussion focused on tensions arising from aspects of the CUR definition and other colleges’ definitions of undergraduate research. These tensions regarding the various

components and practices of undergraduate research can be viewed on the following continua:

| | | |
|----------------------------|---|----------------------------|
| Student, process centered | ↔ | Outcome, product centered |
| Student initiated | ↔ | Faculty initiated |
| All students | ↔ | Honors students |
| Curriculum based | ↔ | Co-curricular fellowships |
| Collaborative | ↔ | Individual |
| Original to the student | ↔ | Original to the discipline |
| Multi-or interdisciplinary | ↔ | Discipline based |
| Campus/community audience | ↔ | Professional audience |

In what follows, we will attempt to articulate some of the issues involved in each continuum, and also articulate the choices that must be made before useful definitions of undergraduate research can be formulated. The aim is to help those engaged in fostering and evaluating undergraduate research to become explicit about their values, so that research opportunities can be developed that most effectively reach their students.

Student Development versus Outcome Production

A key issue in defining undergraduate research is the purpose for which it is intended. Clearly, the majority of the participants at the 2007 CASTL gathering in Alberta felt that undergraduate research ought to foster student learning. However, there are some faculty members who do not want to label student learning as research until the product has reached a near-publishable state or a quality that might be presented at a conference or symposium. In this case, we might say that the product is valued over the learning process. Also, there are those who put major emphasis on undergraduate research as an important way for faculty members to maintain a research agenda while teaching primarily undergraduate students.

To the degree that the primary purpose of undergraduate research is to foster student learning, the emphasis might be on helping students to move along a developmental trajectory in the practice of research. The developmental process might begin in the first year of college and continue until the student is capable of doing independent research under the supervision of a faculty mentor. If, however, the primary understanding of undergraduate research is the production of a sophisticated product, or to provide competent students to assist in faculty research, then only the most promising students will be invited to participate in the research project.

A campus might define undergraduate research as student-centered in some departments and product-centered in other departments because research expectations will differ across disciplines. A school or department might locate itself toward the center of the continuum if its undergraduate research orientation involved efforts that were fairly well distributed toward both ends of the continuum. Alternatively, an institution or department might tend to identify its undergraduate research opportunities at one end of the continuum. It could also be the case that research for seniors would

be outcome-oriented in nature, with that for first-year students being process-oriented—on the other end of the spectrum.

Curriculum-based versus Co-curricular Fellowships

Some institutions or academic programs might embed research skills throughout the curriculum, developing a carefully articulated plan of courses wherein each nurtures one or more skills necessary toward becoming an independent researcher. This approach could be viewed as allied with student-centered research. It might suggest that all students across all disciplines would have some experience with undergraduate research prior to graduation. Brakke (2003) suggests that developmental experiences might begin with an investigative inquiry in introductory science laboratories and then move into more open-ended experiments. Disciplines other than science would have a variation on this developmental sequence. Toward the end of the college experience, students might be required to complete an independent research project or thesis in their senior year.

Other programs emphasize summer research fellowships or academic-year fellowships that are additions to the curriculum. These fellowships provide a concentrated period of time to work on a research project. It is likely that they would be reserved for students who are especially selected for participation. In most cases, these are students in honors programs or students who have demonstrated particular abilities in the area of study. Thus, this approach could be more compatible with an outcome focus, though that need not be the case. It is

possible that some departments would engage young students in co-curricular fellowships over an extended period of time, for the purpose of student development rather than publication per se. Also, an institution could apply its resources toward both kinds of approaches, thus itself falling somewhere toward the middle of the continuum when its overall research orientation is considered.

All Students versus Honor Students

Institutions must decide how to allocate scarce resources to competing enterprises. One institution might value assuring that all its students attain a certain level of research experience or expertise, and disburse its funds broadly. Another might choose to use its resources to take a small group of students to a very sophisticated level of scholarly development. If an institution prefers the latter, it may be more likely to define research as something that results in a publishable or near-publishable product, whether or not publication itself is actually an aim. Institutions that emphasize the former may not have the resources to bring all students up to that level of development; they then would be placing less value on student participation in knowledge creation within fields. If the institution chooses to place student development as the higher priority, then the institutional curriculum

could be research-rich, with investigative skills intertwined in all aspects of the curriculum. Such an approach might also suggest that professors begin with the student at whatever skill level he or she has, and then attempt to move the student as far along the continuum of research skills as possible given time and resources.

Furthermore, the purpose of engaging the student is also a factor. For example, one institution or department might argue that its purpose in teaching students to do research is to more effectively

“If the institution chooses to place student development as the higher priority, then the institutional curriculum could be research-rich, with investigative skills intertwined in all aspects of the curriculum.”

prepare students for graduate school. It then might focus more of its resources on helping a few students attain this stature, rather than spreading the resources out across the student body. Other institutions might prefer to emphasize the educating of citizens by providing all or

most students with the capacity to investigate pressing social problems, such as analyzing soil in low-income neighborhoods for lead content or studying child trauma in high-crime urban areas.

Student-Initiated versus Faculty-Initiated

Students may be encouraged to develop a passionate interest in a particular topic and then to design their own research projects, with the guidance of a faculty mentor. In other programs, students may be encouraged to work with a faculty mentor on a faculty-designed

research project. In the latter case, the student may take a small piece of the mentor’s large project so that the student has ownership of the research but has not developed the idea him/herself. Either approach can constitute legitimate research that might eventually lead to a publication or research poster and an original contribution to the discipline. And institutions might choose, as with each of the dimensions on the continua described here, to support a mix of student- and faculty-initiated efforts.

Originality: Original to the Student versus Original to the Discipline

A term used regularly when research is discussed is “original.” But what does “original” mean? Typically, the word is used to denote a new contribution to a field. It is possible, however, that a student taking an introductory methods course in psychology could produce something original, defined as a unique way of bringing information together. So we might view the latter as an “individual” form of originality, and the former as a “broad” form, with “broad” referring to originality as defined by a discipline and monitored through peer review.

It is also true that creation of an original product may not be essential to label work as research. For example, a sociologist might want to offer students basic methods courses in which projects called “research” are assigned, projects that give students practice in certain methods. These projects would not be expected to result in publishable outcomes or even to produce anything original, broadly defined. Other disciplines might be more interested in

naming as “research” only that work that resulted in what the discipline would view as worthy of submission to a journal.

Multi- or Interdisciplinary versus Discipline-Based

The extent and manner in which an institution engages its constituents in inter- or multi-disciplinary work could also be a factor in how it defines undergraduate research. Recent trends for U.S. funding of scientific research recognize the value of interdisciplinary approaches to answering complex/sophisticated questions (Committee on Facilitating Research, 2005). Nonetheless, many standard academic journals continue to emphasize work within disciplines and place relatively little value on interdisciplinary work. Those departments, programs, or universities most interested in interdisciplinary work might end up identifying research by a less-traditional type of outcome. For example, the outcome might be solving a problem, rather than a publishable paper. Community-based research takes on exactly this kind of problem-solving focus. There may be little interest in a publishable outcome; addressing a social challenge and the development of students’ skills to engage in this kind of work may be of greater concern.

Collaborative Research versus Individual Research

Research in the sciences tends to be more collaborative where students and faculty members work as a team. Indeed, high-level science research is often done by teams of professional researchers. Science professors at smaller liberal-arts campuses may

serve as mentors to their students. Professors may create teams for particular research projects that involve several students and then act as the team leaders/mentors. On larger campuses with graduate programs, a master’s or doctoral student or post-doctoral fellow may serve as the mentor and all levels of students may be part of the lead professor’s research team.

Undergraduate research in social science may be either collaborative or individual, while research in the humanities is most often individual. Collaborative research projects may be designed by the faculty

mentor, while individual projects are more likely to be student-designed. In all cases, however, the role of the mentor and advisor is critical to the students’ learning process so that they develop strong research skills and an understanding of ethics in research.

Campus / Community Audience versus Professional Audience for Student Research

Students who participate in undergraduate research often have the opportunity to develop oral and written communication skills through presentations and writing articles. Many campuses host research or celebration days when students can present the results of their work. Some campuses have a rigorous selection process for their research day, while other campuses may allow any student meeting

very basic eligibility guidelines to make a presentation. Students who participate in community-based research will have as a primary audience a non-profit organization, church, office of city government, or other non-campus entity. Regardless of the venue, students have an opportunity to share the results of their work with peers, faculty members, and others. They

“...the role of the mentor and advisor is critical to the students’ learning process so that they develop strong research skills and an understanding of ethics in research.”

will receive feedback and be expected to answer questions about their project. The presentation process can be an invaluable part of their learning experience and prepare undergraduate

researchers for presentations to broader audiences.

Other students may have the opportunity to present their work at professional disciplinary meetings, either at special sessions for undergraduates or at regular sessions.

Campuses may publish journals of undergraduate research. These journals may be peer-reviewed and edited by students, faculty members at the institution, or faculty members external to the institution. Some student research is of sufficient quality that it may be publishable in professional journals. How a campus defines undergraduate research will determine the extent to which its emphasis is on campus-based or community audiences for student research or whether its target is professional audiences external to the campus.

More Contested Common Ground: Evaluation of Undergraduate Research

How does one evaluate the quality of the work that the student has done? If one's emphasis is on the product end of the spectrum above, and work is done in a single discipline, the standards for assessing student work should be fairly clear. The foundation for students' understanding of quality work begins early in the classroom when students are taught to look critically at a discipline's research and learn about the standards that such research is required to meet. One of the key tasks of research mentors/advisors is to build upon this foundation, to teach novice researchers how to fulfill such standards. Mentor/advisor assessments of a student's research would be based on these, probably longstanding, criteria of the discipline.

The student-development emphasis for undergraduate research can, in contrast, open up many ways of evaluating student work. At the most introductory level of education in doing research, a student's test results might suffice as an indicator of successful development. Tests of the student's knowledge of how to do regression analysis, for example, might suffice in an introductory economics-methods course. A formal research paper might not be required at this level of learning about research. Once one moves beyond a definition that is associated with a specific

discipline, criteria for evaluation may become contested, perhaps negotiated across disciplines or imposed by single disciplines. In community-based research, for example, a criterion might include the degree to which the student involved community partners in the research process—that is, the effectiveness of collaboration, of teasing out non-academic expertise needed in the project. Another criterion might be the usefulness of the information provided to the community organization for which the project was undertaken. Many in academia would not consider these valid criteria for whether a student has done research well or not. And yet, as problem solving becomes more interdisciplinary in nature, such criteria may become more salient.

Institutional Context

Definitional decisions may be more cultural or contextual than anything else. Some institutions, because of their history or culture, might simply be more inclined to name the earlier stages of student investigations as “research” than other institutions. Land-grant institutions might identify as research work that serves a community need, while others will only call work “research” if it has reached a stage that would allow it to be submitted to a scholarly journal. Institutional context matters.

Enhancing the Benefits of Undergraduate Research

It is clear that undergraduate research, by any definition, is

beneficial. For students, the opportunity to define a problem and work toward a solution that might have practical, real-life applications constitutes significant value. Students are more likely to engage actively in the total learning process when their curiosity is stimulated by the research question. Solving research problems can help students to organize their thinking, develop more creative thinking, and gain confidence in their own intellectual abilities. Undergraduate research can encourage students to continue their education beyond the baccalaureate degree, make them more competitive for graduate programs, and prepare them for success in graduate school. Opportunities for presenting the results of student research can lead to improvement in their oral and written communications skills. Undergraduate research can foster both collaborative and independent skills. Researchers learn to handle ambiguity, to accept the fact that the research project doesn't always work out as expected. And perhaps most importantly, undergraduates will develop the habit of asking “what if” and “why not” questions that can lead to new discoveries or new ways of improving the practice of their careers.

The benefits of undergraduate research extend beyond the student. Undergraduates can be valuable members of research teams. They can bring fresh perspectives, insights, and energy to investigations. Undergraduate research is important to a variety of disciplines because it helps to pass on the torch of investigative research to future generations; it ignites passions and quests for new knowledge within the college-age population.

“It is clear that undergraduate research, by any definition, is beneficial.”

Undergraduate research benefits students, faculty members, and institutions as a whole.

An aim of the Carnegie Academy for the Scholarship of Teaching and Learning's 2006-09 Leadership Program on undergraduate research is to understand what fosters high-quality undergraduate research education, so as to help guide our own institutions and others in better attaining its benefits.

We have found, perhaps not surprisingly, that definitions of undergraduate research vary widely, not just across institutions, but within institutions, and that definitions are often implicit. Thus, conversations among constituents of a college or university can be difficult, with each person thinking he or she is speaking the same language when, in fact, that is not what is occurring. We have attempted in this article to articulate the various points of potential incongruence between those hidden variations in meaning that can accompany the discussion of "undergraduate research" on a campus. These variations might be worth facing head-on if an institution wishes to bring the operative definitions of research at its institution to light, in the hope of making clearer choices about how best to teach undergraduate students to engage in scholarship.

Our conclusion: There is no one correct definition. One size does not fit all. An institution will best access the many benefits of undergraduate research by carefully formulating a definition or definitions that fit its campus culture and its unique institutional mission.

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The Research Seminar Experience



by Jerry Bannister
History Department

When I was an undergraduate student at Memorial University, research seminars had a certain mystique. Seminars were specialized fourth-year courses, taught by senior faculty, and most had fewer than ten students. They shared distinct features: students were required to read a selection of recent scholarship on a topic, design and write a paper based on primary research, present their draft paper to the class, and participate in vigorous peer review. Seminars had neither midterms nor final exams, and professors refused on a point of principle to lecture to fourth-year students. As capstones of our education, seminars freed us to craft our own arguments out of primary research and to debate our findings with our peers. They also forced us to confront the challenges of tackling an ambitious research project and working in a collective environment. Research was never treated as an isolated exercise of a lone scholar working in seclusion.

When I took my first seminar, I quickly realized that I could not just write up a paper (usually after pulling an all-nighter) and hand it in at the end of term. Tasks that I normally jumbled

together in a frenetic scramble to meet a deadline – deciding on a topic, coming up with a research question, collecting evidence, interpreting data – were now broken down into an organized sequence, stretched out for several weeks, and subjected to close scrutiny. In each seminar course I took, I was forced early in the semester to select a topic and the primary sources to research it, and also to present my draft paper to the seminar, and respond to a formal peer review from another student. I then met with the professor to discuss my draft, and I was expected to revise and expand my paper thoroughly before the end of the semester, when the final version was due. No one could afford to skip a class, because class participation was worth so much of our final grade. In retrospect, it is surprising that we liked seminars so much, but we did. Perhaps it had something to do with the status of taking a challenging course, or getting to know the professor better; but I think one of the principal reasons is that we learned a great deal. We gained not only knowledge of a particular subject but also specific communication and research skills. We learned about research by doing it.

When I came to Dalhousie University in 2003, I carried

this seminar tradition with me. Professors invariably draw on their own experiences as undergraduate and graduate students when they design courses, and this can help to renew and diversify a university's curriculum. I arrived as our Department was moving to a four-year undergraduate model that required History majors to complete designated seminar courses. The course I designed is History 4250, "Popular Culture in the Atlantic World, 1650-1850," which is cross-listed as History 5250. After experimenting with different formats for a couple of years, I divided the syllabus into three parts: for the first month, students read and discuss articles that introduce them to problems

and research methodologies relevant to cultural history; then we spend several weeks reading and discussing Laurel Thatcher Ulrich's award-winning book, *A Midwife's Tale: The*



Life of Martha Ballard, Based on Her Diary, 1787-1812; and the rest of the semester is devoted to presentations and reviews of students' draft research papers. I chose *A Midwife's Tale* because it offers a remarkable opportunity to learn the craft of primary research through the *dohistory.org* web site. This website has a wealth of supplementary materials, such

as the entire diary of Martha Ballard (viewable in both its original handwritten form and a searchable typescript), interviews with Professor Ulrich, and video of the PBS film based on the diary. Professor Ulrich explains in an online interview that, “My effort to recover Martha Ballard’s life was – in large part – an enterprise in recapturing the historical significance of trivia.” The book and the web site give students the chance to see how historians use primary research to study daily life in preindustrial societies.

During the seminar discussions of *A Midwife’s Tale*, every student is assigned a chapter to focus on for their first assignment. They are required to prepare a critical review of that chapter drawing from the online diary, and they are asked to evaluate Ulrich’s analysis based on the content of the primary source. This gives students the opportunity to dissect the research process and examine how an historian uses evidence to construct an argument. Each student is required to make an oral presentation in class and submit a written essay after our discussion of *A Midwife’s Tale*. The goal is to help students to prepare their own research project by thinking critically about how Ulrich used the diary of Martha Ballard. Once the students have finished their review papers, we take a week to conduct a research workshop during which everyone is asked to finalize their own primary source (or, depending on the project, set of related primary sources), and we devote part of our time to discussing the vital link between research and writing.

Just as I had found research seminars challenging when I was an undergraduate, students

in History 4250 have had strong responses to confronting a new learning environment. Some students have explained to me that they normally repeat the same strategies they have used in the past for each of their courses. Once they chose a topic and a thesis, they normally searched through books and articles in the Killam Library and selected evidence to prove their point.

Employing a type of deductive reasoning, they cherry-picked facts from a variety of primary and secondary sources, and this allowed them to focus on only the evidence that supported their thesis. History 4250 can require a significant adjustment in research practices, because students must complete their primary research before finalizing their thesis. When students have expressed frustration over this research requirement, I’ve responded by explaining that this is actually one of the principal pedagogical goals of the seminar. I explain that the objective is to conduct research and develop a thesis based on the relevant evidence from a primary source. The course purposely constrains undergraduate students to work within the evidentiary parameters of a sample of primary sources, rather than to manipulate disparate data to fit a preconceived notion.

There are many different ways to pursue research, and History 4250 is unabashedly rooted in historiography, which is an

ongoing dialogue among historians about the past. Historians often adopt hybrid techniques that draw on a mixture of quantitative and qualitative models, but they tend to reject a priori reasoning in favour

“We gained not only knowledge of a particular subject but also specific communication and research skills. We learned about research by doing it.”

of a posteriori arguments rooted in evidence from the past. They debate not what could or should have happened in the past but what actually happened in a particular time and place. They face the burden of positive proof by making arguments

based on what they learn by researching the existing historical records. Making such arguments requires historians to read primary sources closely, with an open mind, searching for evidentiary patterns. To do this properly, they read the secondary literature extensively, revise their own work intensively, and try as much as possible to place their evidence in its specific historical context. History 4250 gives students the opportunity to contribute their own original research to this scholarly discussion. Several former students have published versions of their research papers or presented them to conferences, while one student’s research project formed the basis of a SSHRC-funded doctoral thesis and another won the prestigious David Alexander Prize for the best essay on the history of Atlantic Canada. As evidenced by these students’ successes, the challenge of writing, presenting, and revising a major research paper can be frustrating but also extremely rewarding.

“I think I can, I think I can...I knew I could!”

A tale of an undergraduate learning adventure



by Anne Marie Ryan, Ph.D.
Senior Instructor, Earth Sciences

The Context

Curious, creative, critically-minded, and disciplined—few 5-year olds lack at least the first three of these attributes. So surely these characteristics must be in the students we teach—we just need to re-awaken them. I went on a quest to find a better way to reach students and give them a more enriching and real experience within their discipline, and bumped into the idea of an “authentic research project.”

Newman and Wehlage (1993), discuss the importance of authentic learning experiences, which they define as “significant and meaningful” opportunities for enriching learning. Authentic undergraduate research can serve to develop critical and divergent thinking (Bank & Ryan, 2009), build autonomy (Desai *et. al.*, 2008), breach the gap between teaching and research (Sabatini, 1997), and make the learning and teaching environment challenging, engaging, and rewarding for the students and the instructor alike. So, why do we not provide students with such experiences more often?

The Boyer Commission (1998) argues for extending the scope of the research experience to include all undergraduate students—a task not easy to envisage with large numbers of students and limited funds. The student project I am outlining in this article stems from my venture on working towards an authentic research opportunity for all students in a small third year class, as one possible model for undergraduate research.

The Nature of the Project and How It Unfolded

I knew that my course in Environmental Geology would have a small group of students in a combined 2nd-3rd year class for majors and non-majors. As a result, I arranged with one of the local government divisions to access samples and accompanying data which had not been processed, in order to develop a collaborative project for the six majors. Given the nature of the project and the variable backgrounds of the non-majors, I opted to assign a more traditional project for them to do individually. Because most of the work on the projects for both groups was outside of regular class time, this division of project type did not pose any particular problem for either group.

Each student in the group of majors doing the authentic research project got a subset of soil / sediment samples for classification, and the accompanying raw analytical data that had not yet been processed. These samples and data had been collected as part of a larger sampling project throughout the province. The key question for

the students was: “Based on your reasonable geologic classification of these samples, are there any patterns discernable, and what and where, if any, potentially toxic elements exceed Canadian guidelines?” Unlike many of the projects I had assigned in the past, this one presented the students with real, unprocessed data, and an initial question to which neither I nor anyone else had the answer.

The plan was to have each student be responsible for working individually with a subset of the data to generate previously unknown information, then collectively put the individual components together, into a cohesive whole. The students’ contribution was to be 5-fold: (1) classify their individual set of samples (not previously known); (2) graphically interpret the unprocessed accompanying data; (3) interpret the already-processed (but not synthesized) data for their samples in light of their findings, in terms of the classification they generated; (4) combine the six individual pieces of the puzzle into a coherent whole; and (5) communicate their results to the government agent who generously provided the materials and data for the students’ project. In addition to seeking out a relevant and reasonable project, my role involved most specifically: (1) creating and maintaining a structure, with some flexibility built-in; (2) determining a reasonable division of labour, and establishing boundaries, given that the project had a time-limiting component; (3) meeting

with the students regularly to provide support and answer questions, make suggestions, etc.; and (4) serving as tutor in skill development and time management, as the need arose.

The Beginning Stages

It was critical for the students themselves to commit to seeing this project through to the end. So at the onset, having informed them of the overriding objective and some of the details, they had the opportunity of opting out and doing an independent study—all opted to commit.

While the project aim had been loosely defined by me and not the students, the path to our goal was to be negotiated between us.

We agreed that the final product would be a poster rather than a written report, and would form a considerable portion of their grade. I stressed the task would involve both an individual and collaborative component, outlined what the project would aim to do, described deliverables and pointed out further opportunities to communicate the findings more widely and beyond the timeframe of the course. I discussed the “messy” and “work-intensive” nature of such a task, and that once embarked upon, they would not only be responsible for their own individual component, but also responsible for the collaboration, without which this particular project could not be completed. All in agreement, we set a regular meeting time outside

of class. Based on the geographic distribution of the samples, I divided them evenly between the 6 students, assigned a couple of background readings to get them started, and also assigned a specific task for the students to complete prior to our next weekly meeting.

Working Together Through the Project

As the term unfolded and their individual components were completed, the truly collaborative work began. Building on their

“Unlike many of the projects I had assigned in the past, this one presented the students with real, unprocessed data, and an initial question to which neither I nor anyone else had the answer.”

individual strengths, the students volunteered to pull together different components into a cohesive whole. The students had on hand a number of examples of honours and graduate student conference posters as models from which to work. Significant factors that came into play in this project were the absolute deadline, and the need for successful collaboration to complete the poster and make the presentation to the government representative (and their classmates) on the final day of class. Needless to say, pulling the poster together in the final stages was a very intense phase, and did involve a couple of additional week-end meetings with various members, depending on individual schedules. With literally minutes to spare, the poster was printed and the students presented their findings to the government representative and their classmates in their own class setting. It was done! They had achieved what

they had set out to do: learned various data manipulation and compilation skills, questioned their findings, worked independently and collaboratively and to a deadline, communicated their findings in a coherent manner, learned course-specific material, addressed a geologic issue from an environmental perspective—and earned a grade component for their course.

From the students’ perspectives, the “messiness,” grappling with uncertainty, and the amount of effort required, as well as their real and sometimes stated insecurity and self-doubt that they could do this, is a further reminder to us that students need scaffolding, reassurance, and opportunity to practice new skills, as they embark on learning adventures.

Beyond Expectations

The poster they produced in early December was the end of the experience for most. However, two of the students took it further. With my encouragement and support, they refined the poster and submitted it to an annual Atlantic regional conference, and again to an intra-university symposium, where they were awarded a prize for one of the best undergraduate posters, much to their credit... and joy! These two students were amazed at how much they got out of these latter experiences, as they had to explain more thoroughly their findings, justify their choices, and hypothesize “on the fly,” as it were. Their experience reminded me that, as instructors, we need to require students to take ownership of their work and justify it to others more often for reasons beyond a course grade. The outcomes can be truly rich and authentic learning experiences.

Where to From Here?

Would I do this again in one form or another? Without a doubt, yes—although it was a lot of work for myself and the students. However, it was worth the effort and planning to watch the students grow academically and professionally through the process—and the results themselves were interesting, and have led to an entirely new set of questions: Why are patterns obvious in some locations, for some elements, and not for others? What, if any, impact does acidic rainfall have on the results? What happens to these elements when we disturb the soil to cut a road, build a subdivision, etc?

In terms of how I might approach a project such as this the next time, there are a couple of things I would do to make the journey a little smoother, although with authentic research, there is no guarantee! In addition to spending more time with the students in the initial stages and making things as explicit as possible, I have also decided that in all my classes, I need to make some adjustments so students can tackle these kinds of learning experiences with more confidence. For example, since working with these students, I have come across a developmental framework for building students' research potential through incorporating specific components into students' undergraduate experience as a whole (Willison and O'Regan, 2007). Willison and O'Regan (2007) have created a framework as a guide to how we might scaffold the components of research for students at all stages in their university experience. They have summarized their findings nicely on a one-page chart (<http://www.adelaide.edu.au/clpd/rsd/framework>). In planning even my first year courses, I fully plan to take a leaf from this framework to sow the seeds for budding researchers at the undergraduate level.

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Teaching and Learning with Technology Grants

Call for proposals deadline: **January 17, 2011**

The Teaching and Learning with Technology Grants are intended to encourage faculty members who are seeking new and innovative ways to incorporate technology into their teaching practice. Grants will be awarded to individuals and/or groups who can demonstrate how the project can benefit students' learning. All grant recipients will be required to share their project results with the wider Dalhousie community through the Centre for Learning and Teaching conference/workshops or through other dissemination opportunities.

Preference will be given to projects that can be completed within one year and that can be fully funded by the awarded grant plus any necessary additional funding from other sources. The application process is intended to be user-friendly. Please download the form from **www.learningandteaching.dal.ca**

A STUDENT'S TESTIMONIAL

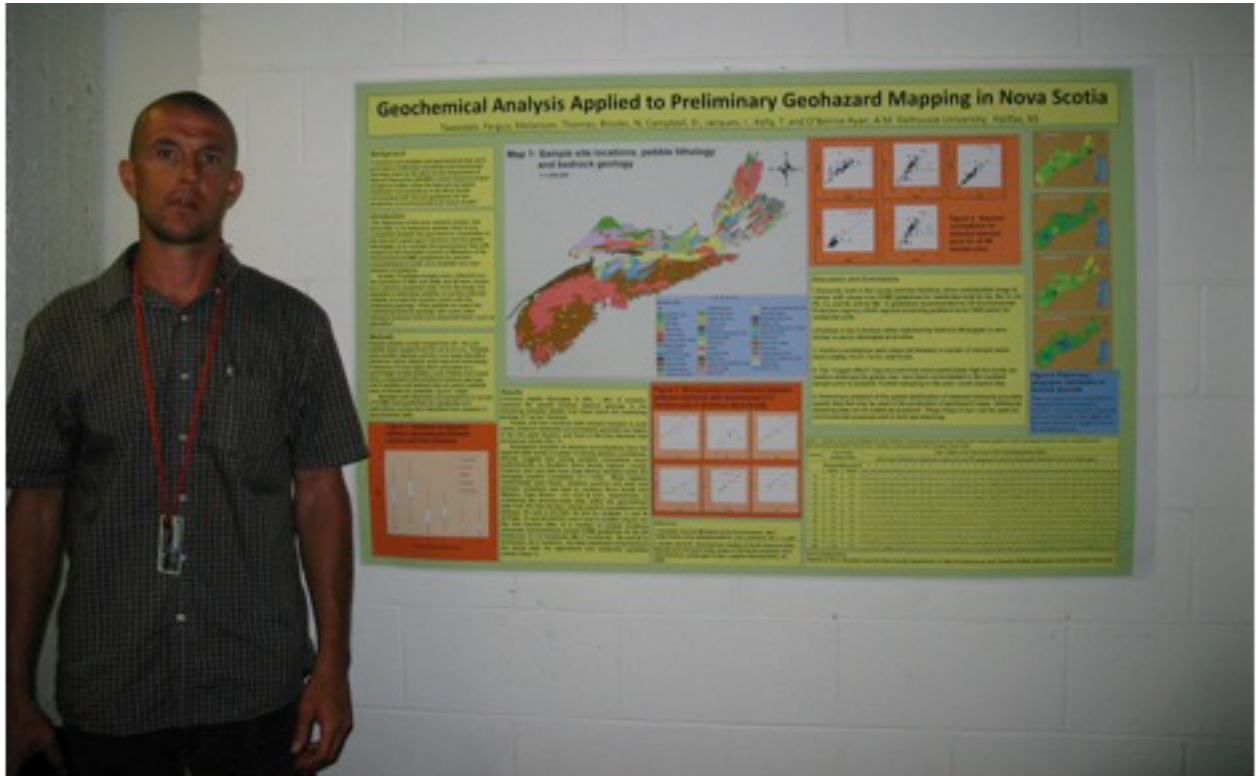
by Fergus Tweedale, 3rd Year Earth Sciences Major

This project (in Professor Ryan's Environmental Geology class) forced me to have confidence in what I understand, and to take the initiative and lead a project. This experience has led me to understand that the stuff I'm learning about has importance in our world.

If Earth Sciences students don't take the initiative in developing sustainability projects and tackling environmental challenges, then who will?

It is both gratifying and reassuring to realize that I can share with others, in a purposeful way, what I'm learning, and that my contribution to a project can be helpful in working toward the realization of its objective.

This project has given me the required focus that I need to become an earth scientist.



Winner: Best Undergraduate Research Poster prize at the 6th Annual Sustainability & Environmental Research Symposium, March 25th, 2010, Dalhousie University.

Topic : Geochemical Analysis Applied to Preliminary Geohazard Mapping in Nova Scotia

Coming soon to a mail box near you...

Calls for nominations for Teaching Excellence awards will soon be delivered by campus mail to departments. The Centre for Learning and Teaching provides administrative support for four university-wide teaching awards:

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- The Educational Leadership Award
- The President's Graduate Teaching Assistant Award

Be on the lookout for the nomination forms and be sure to nominate your favourite professor, instructor, and teaching assistant.

Students Studying Students

The SOSA Majors/Killam Library Student Study



by Linda Bedwell
Librarian, Killam Library

Usually, students come to the library to study, but in the case of the Social Anthropology and Sociology Majors/Killam Library Student Study, the library went to the students to study... students! Last fall, the entire Sociology and Social Anthropology (SOSA) Majors Seminar Class, their professor, Margaret Dechman, and I, a Killam librarian, embarked on a socio-ethnographic study of Dalhousie students and how they interact with the Killam Library's space, services, and website. The SOSA Majors Seminar provides students with experiential learning opportunities. Applying their knowledge of research methods in sociology and social anthropology to a library study not only fulfilled this requirement, it also appealed to the entire class of students who agreed to conduct the study with me. The information gleaned from this study aimed to help the library make changes to better suit students' academic learning, information-seeking and study behaviours.

The study consisted of three modules:

Participant Observation—the SOSA majors each spent two hours observing how students utilized space within the Killam Library;

Interview Surveys—over the course of two days, the SOSA majors conducted interviews with students in the Student Union and Management buildings to learn more about student research and work habits; and

Website Focus Groups—three focus groups were held by SOSA majors to learn more about how students use the current library website, and to gain student input into the design of a new homepage.

The findings of these study modules were very revealing. We discovered through participant observation which areas of the Killam Library are conducive to individual study and group work and which were not. The website focus groups provided excellent student feedback on our new homepage design with a simplified homepage and less text and direct access to the search tools they use the most. We are also finding some significant differences in how students learn to do research between the different disciplines and based on personal characteristics such as gender. The analysis of the data is still on-going.

The fact that we are continuing to sort through the interview survey data means, yes, we were short on class time at the end of the semester. The SOSA majors completed each study module, but we only had enough time to analyze and discuss findings from the participant-observation study and the website focus groups. In order to take advantage of an opportunity to impact the web renewal project, we shifted our concentration mid-stream from the interview survey data to the website focus group findings; in doing so, the majors learned first-hand about prioritizing work. I believe this was a valuable lesson

for the students.

If I was to do a project like this again (and I would love to) I would expect to benefit from past experience and would be able to plan the study modules further ahead of time; however, I would still hope for more unexpected

“I was more than pleased to hear from one major at the end of the semester that she had secured a job thanks in part to the experience of conducting a focus group for this study.”

obstacles—because this is reality, and reality provides such great experiential learning opportunities. Together we handled: low responses to focus group recruitment efforts, sudden changes to internal workflows, difficulties arranging table space for interview surveys, and restrictive rules imposed on the table rentals.

Aside from negotiating real-world obstacles, throughout the

course of this project the SOSA majors learned, experientially, the pitfalls of observer bias, interviewing methods, how to organize and formulate interview questions, how to effectively conduct focus groups, and how to work as a team. I was more than pleased to hear from one major at the end of the semester that she had secured a job thanks in part to the experience of conducting a focus group for this study.

I was also a learner throughout this project. This was my first time using some of these research methods and I learned both experientially and directly from

the SOSA majors as they shared their knowledge in the areas of sociology and social anthropology. I also learned from their first-hand knowledge of being a student and using the library. Meeting with them on a regular basis to discuss the progress of the project, I was able to ask them many questions, which they happily answered. I find it doesn't matter how much we read, there's always more to learn from/about students—simply by asking.

When you collaborate with students on a real-life project, you take on a certain responsibility; not only for their learning outcomes,

but also for the project outcomes. I hoped in the beginning that it would be a good investment of my time as a librarian, and that the SOSA majors would benefit from the study activities. I am now happy to say that this project was not just a win-win, it was a win-win-win-win. The Majors had an opportunity for experiential learning, the Killam library completed three student studies, I gained insights and experience about the library and working with students, and the Dalhousie student population gained a better library.

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Creating More Effective Knowledge Translators at the College of Pharmacy



by David Gardner
BSc Pharm, PharmD, MSc
Professor, Department of Psychiatry
and College of Pharmacy

The competency of health practitioners is challenged by rapid changes affecting their scope of practice. To remain competent, practitioners need to be aware of and adapt to new insights into human disease, preventive health care, the various social determinants of health, and illness remedies (in particular this refers to medications, broadly defined to include prescription and non-prescription drugs, as well as natural health products). The content of a four-year undergraduate degree in Pharmacy or any other health profession therefore becomes quickly out of date upon graduation. As such (and please forgive the cliché) it is paramount that students develop the necessary skills for life-long learning.

Over a decade ago the College of Pharmacy transitioned from a traditional program to a problem-based learning (PBL) curriculum. This change opened the door for a new focus on the development of critical appraisal and knowledge translation abilities. Five or ten

years after graduation a pharmacist should not expect their school-based knowledge to be accurate or relevant. So what should they do? The answer is not in attending continuing education programs, as they cannot be expected to provide answers to all the daily questions that arise in clinical practice.

The answer is not in reading the pharmacy and medical literature as it becomes available, as that has been likened to drinking water from a fire hose. The practical answer is in being skilled and efficient at finding, appraising, and applying the information/knowledge one needs to know.

To achieve the development of this skill set, the College of Pharmacy distinguished itself from other Pharmacy programs internationally by introducing the Critical

Appraisal Series (CAS) as part of the new PBL curriculum. CAS is actually three individual courses in the Dalhousie Calendar, covering years 2–4, but it runs as a continuous series in which one course follows where the previous left off. Over the three courses, students are

expected to develop increasingly sophisticated knowledge and abilities related to evidence-based practice principles. In brief, these include the ability

to: i) develop patient-specific clinical questions; ii) efficiently locate the best available evidence to address these questions; iii) critically appraise the best available evidence; iv) synthesize information important to supporting an informed treatment decision; and v) communicate effectively.

As students progress through CAS, the learning methods and content evolve. Early on in the Pharmacy Program, students are taught how to develop patient-specific, answerable, pharmacotherapy-related, clinical questions coinciding with their development of patient assessment skills. They are also expected to develop a sophisticated knowledge of their information resources and how to harness the power of the

many medical and pharmacy electronic resources and databases. We push our students to develop searching skills that approach those of the staff at the Kellogg library (we have high expectations). CAS substantially focuses on research methods. Our goal is not to develop researchers, but to develop

practitioners who understand and can apply research. We partner with the Department of Math & Statistics to deliver an advanced biostatistics course embedded and

“The application of CAS with an emphasis on knowledge translation helps to prepare them for using their critical appraisal abilities every day in clinical practice and adapting to new knowledge and new therapeutic options.”

integrated into the CAS series. While we are not aiming to develop researchers we do not mind if our students take this head start and follow through with becoming researchers. As CAS progresses, it gradually shifts from being lecture and individual learner based to group based, which facilitates application activities. It also becomes increasingly integrated into the rest of the curriculum.

Here are a couple of examples of what students learn in CAS:

1. The p-value: abused, misused, and misunderstood

To a great extent the p-value is over valued in health research. In a clinical trial, p-values are generated when two treatment groups are compared statistically. A very low p-value (e.g., $p=0.01$) indicates that the difference between treatments, for example in terms of pain control or disease relapse rate, is unlikely to have occurred due to chance. In this case, the p-value would indicate that the difference observed would be expected to occur simply by chance 1 in 100 times. As such, the p-value provides a numerical probability for finding chance differences. However, it is important to keep in mind when comparing the effects of two treatment options in a clinical trial that any differences observed could be due to: a) random error (chance), b) problems with the study design and analysis (bias, confounding), or c) one treatment being more effective than the other. By convention, $p<0.05$ is labeled as a “statistically significant finding” and $p>0.05$ is a “non-significant” finding. The threshold of 0.05 is arbitrary and tells nothing of the clinical importance of the finding

or of any problems with the study’s design or analysis. A high p-value might mean that the treatments are not different for a given effect but it may also mean that the study was under-powered and failed to identify a clinically important finding with statistical certainty. A very small p-value is helpful for ruling out chance as an explanation of the findings, but it should not be interpreted as meaning that one treatment is superior to another in clinical practice. The low p-value may be a result of a bias or confounding in the study or may be associated with a clinically unimportant treatment effect (often seen in very large studies). In such situations, the low p-value promotes the interpretation that the findings are “significant” but it needs to be kept in mind that this is statistical as opposed to clinical significance. When scrutinized, the p-value by itself cannot tell you if a treatment works or doesn’t work, if the effect of treatment is large or small (or inconsequential), if the study was designed and analyzed appropriately, or if many biases have led to the impressiveness of the calculated p-value. The 0.05 threshold creates a false dichotomy, erroneously assumed to have the power to decipher an effective treatment from an ineffective one. The probability of observing the difference detected between groups when truly there isn’t one is all the p-value tells us.

2. Clinical interpretation of results

Numbers do not speak for themselves. Perspective is critical, which requires an understanding of the health problem (e.g., prevalence, burden, course, pathophysiology), the treatment options, standard management

approaches, expected outcomes, access and cost issues, etc. Understanding numbers is very important. When authors report $RR=0.70$ our students should not have trouble determining that this indicates a relative reduction of 30% of the risk an outcome with one treatment vs. another. They also know that this relative number can be misleading and that they need to do a little more work, determining the absolute risk reduction and number needed to treat, to help put its importance into perspective. In addition, they also know to hold judgment on determining the clinical importance of the finding until they have considered a broader perspective. This includes consideration of what was measured, such as development of class 3 heart failure vs. A1C of >7.5 or some other abnormal blood test.

In the last two terms of CAS students spend much of their time in small groups, running journal clubs and presenting evidence-based cases to each other. The application of CAS with an emphasis on knowledge translation helps to prepare them for using their critical appraisal abilities every day in clinical practice and adapting to new knowledge and new therapeutic options. During the most recent program accreditation, the importance of CAS in the Pharmacy curriculum was recognized in the following way: “CAS, in particular, is considered a ‘flagship’ program in the final 3 years of the curriculum.”

Not sure about a medication? Is it effective, safe, the best option? Our pharmacy graduates are prepared for addressing these questions based on well-developed skills of appraising and applying research.

Undergraduate Research

Tales from a first-time undergraduate researcher and a first-time undergraduate research mentor



by Hannah Le
Undergraduate Researcher
Department of Chemistry
and Jennifer L. MacDonald, Ph.D.
Research Mentor
Department of Chemistry

First-year student, Hannah Le, first heard about undergraduate research opportunities in her chemistry class. Chemistry is her favourite subject, so she decided to give it a try. Undergraduate students can seek research opportunities in chemistry through a variety of avenues including: research scholarship programs such as National Science and Engineering Council - Undergraduate Student Research Award (NSERC-USRA), Reactive Intermediates Student Exchange (RISE), Inorganic Chemistry Exchange (ICE), Summer Internships in Mass Spectrometry (SIMS), and paid or volunteer research positions (visit www.chemistry.dal.ca/Undergraduate%20Studies/Undergraduate_Research_Opportunities/ to learn more about the undergraduate research opportunities available in the Chemistry Department). Research experience is very valuable whether it be for credit as part of a degree program (e.g.,

honours research project) or work experience whether on a paid or volunteer basis. Hannah gained research experience this summer as a paid research assistant. “I’m getting paid to learn while gaining research experience. It’s wonderful!” After discussing different research projects with a number of professors, she found she was most interested in the fibre reinforced concrete project in Dr. Josef Zwanziger’s lab, which was a collaborative project between the Dalhousie Department of Chemistry, the Department of Civil and Resource Engineering and an industry partner. This project particularly interested Hannah as she plans to continue her education in engineering.

When Dr. Zwanziger approached then graduate student, Jennifer MacDonald, with the opportunity to mentor an undergraduate student in the summer of 2010 she was excited; however, initially she had some concerns. As Jennifer had begun writing her dissertation and had no further experiments planned for the summer, she was left pondering the following questions: “What aspect of the fibre reinforced concrete project would be suitable for a summer research project?” and “Will I have enough time to devote to a summer research student to ensure they have a meaningful learning experience?” When Jennifer was an undergraduate student she worked every summer as a research assistant in a

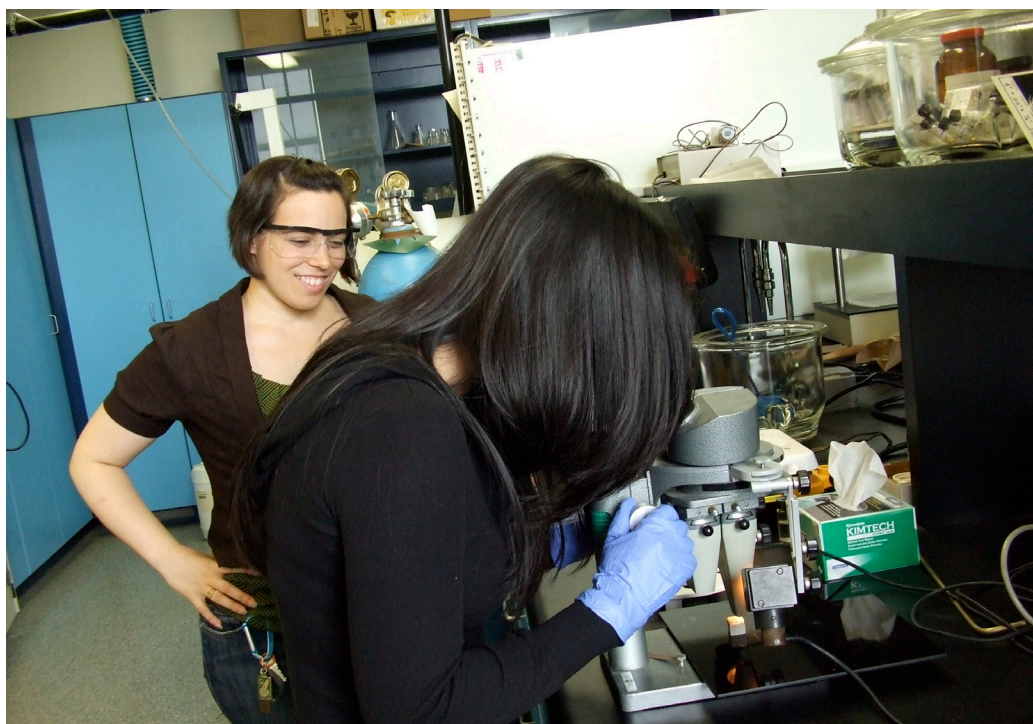
molecular spectroscopy lab. “My undergraduate research experience was pivotal in shaping my path to graduate school,” said Jennifer. “It was therefore clear to me that I absolutely wanted to be part of providing Hannah with the opportunity to work as a research assistant on the fibre reinforced concrete project in Dr. Zwanziger’s lab.”

On the first day, Hannah and Jennifer met to discuss the fibre reinforced concrete project as a whole and in particular the aspect of the project Hannah would focus on for the summer, Raman spectroscopic studies of the polymer fibre/cement interface. Hannah was asked to read about cement and concrete to gain basic knowledge of the systems she would be studying. She was also asked to survey the literature to find information about how other researchers approached Raman spectroscopic studies of cements and to source model cement minerals (jennite and tobermorite). “As a first year student, doing research was a new experience for me,” said Hannah. “I was overwhelmed and didn’t know where I should start.” Meanwhile, Jennifer had been writing her thesis, trying to write sections of three different chapters at once, and realized it was impossible to make progress without establishing a focus and working on one piece at a time. “In that same moment I realized—isn’t this very much like what I had set out for Hannah?”

said Jennifer. As it turns out, they both felt exactly the same way about their current situation and that grasping at so many different topics wasn't getting them any further ahead. So, they devised a plan in which they would focus on smaller portions of the project at a time, which really worked out well— Jennifer began completing sections of her thesis with greater ease and Hannah, no longer

of questions and answers about the experimental purpose, procedure, and outcomes. Following this process, Hannah felt prepared to carry out the experiment independently, and she successfully made numerous samples of chemically modified polymer which was representative of what they observed in a cement/polymer composite. They found this teaching and learning process to be

worked with the museum to obtain samples of the minerals she required for her experiments. Hannah has also received training to use instrumentation in other laboratories to complete her studies of cement, and has had helpful discussions with Sarah Goertzen from Dr. Heather Andreas' lab (Chemistry) for her ultraviolet-visible spectroscopy studies and with Dr. Kevin Hewitt (Physics and Atmospheric Science) for her Raman spectroscopy work. Scheduling work which involves numerous researchers, especially over the summer months, can be tricky and sometimes lead to periods of down time. During these breaks in scheduled experiments, Jennifer and Hannah explored some smaller projects based on questions that cropped up during the summer. An example of a smaller project conducted this summer was one that stemmed from an old set of samples we found which were left by a previous graduate student, Amy



Hannah and Jennifer examine a fibre, which has been embedded in cement for the past 3 years, for evidence of degradation.
(images by Zita Hildebrandt)

overwhelmed, began by looking for the minerals she required for her Raman spectroscopy experiments and for experimental details by surveying the literature.

While Hannah was taking care of the arrangements and preparations for the Raman spectroscopy studies, they began to study the chemical reactions which take place between polymers and cement. They first went through a complete experiment together, which allowed for an open dialogue

effective and continued to use this approach for future experiments.

This project is an interdisciplinary project and as such it requires frequent collaboration with researchers in other departments at Dalhousie and with researchers at other institutions. With assistance from Dr. Anne Marie Ryan (Earth Sciences) Jennifer and Hannah established a connection with the Natural History Museum in Los Angeles, California and Hannah

Trottier. Hannah studied the surface of fibres which had been embedded in cement cubes for three years and observed that the fibres appeared to be damaged as a result of being embedded in the harsh cement paste.

The fibre reinforced concrete project is nearing its final stages and the project goal of creating a new generation high performance polymeric fibre for concrete reinforcement is in sight. Fibres with chemistries which have been identified as potential candidates for concrete reinforcement are

currently being produced and will be tested in concrete in the coming years under the supervision of Dr. Dean Forgeron in the Civil and Resource Engineering Department.

Overall, this summer research experience has been valuable for both Jennifer and Hannah. “I am grateful to have had the opportunity to work with Hannah this summer as her undergraduate research mentor” said Jennifer. “Hannah is an independent worker and always asks questions—excellent traits for a researcher. Discussing our research and exploring questions she had or questions that I had, but not had the opportunity to explore previously, resulted in some interesting—initially unplanned—experiments that helped us further understand the interactions between polymer fibres and cementitious materials. Mentoring an undergraduate student was a very rewarding experience and I would highly recommend getting involved with undergraduate research to fellow graduate students.”

Hannah reflected, “I have learned a lot throughout the process of reading, finding information, and running the tests that I would not have had an opportunity to conduct through classes in my Program. I’m very glad that I went and talked to Dr. Zwanziger about the research project and really appreciate the chance to try something that is totally new for a first year student like me. Consider providing an opportunity to further an undergraduate student’s education and career by offering research project opportunities. The rewards can be many—for both students and researchers!”

Education and Equality Reading Group

facilitated by **Abu Kamara, CLT**

Higher education has been the site of various struggles for equality. By exposing participants to some social and educational theory, this reading group offers participants the unique opportunity of a front row experience of the intersection of education and equality. Participants will be asked to come to group meetings fully prepared to discuss the designated reading material. Group meetings are once a month in the Killam Library, room B400.

Readings for Tuesday, January 18th 2011 (2:00pm to 3:30pm)

James Coleman. (1967) *The Concept of Equality of Education Opportunity*. Baltimore: Johns Hopkins University, pp. 1-21.

Martin Luther King Jr. (1963) “Letter from a Birmingham Jail”.

Readings for Tuesday, February, 15th 2011 (2:00- 3:30pm)

Malcolm Knowles. (1973) *The Adult Learner: A Neglected Species*. Madison: American Society for Training and Development. pp. 29-49.

James Coleman. (1988) “Social Capital and Creation of Human Capital”, *The American Journal of Sociology*, Vol. 94, pp. 95-120.

Readings for Tuesday, March 15th, 2011 (2:00-3:30pm)

John Dewey. (1903) “Democracy In Education”, *The Elementary School Teacher*, Vol. 4(4), pp. 193-204.

John Dewey. (1902) “The School as Social Center”, *The Elementary School Teacher*, Vol. 3(2), pp. 73-86.

Readings for Tuesday, April 19th, 2011 (2:00-3:30pm)

Cornel West. (1990) “The New Cultural Politics of Difference”, *October*. (The Humanities as Social Technology), Vol. 53, pp. 93-109.

Pierre Bourdieu. (1989) “Social Space and Symbolic Power”, *Sociological Theory*. Vol. 7(1), pp.14-25.

Supplementary Readings

Black Learners Advisory Committee. (1994) *Report on Education: Redressing Inequality-Empowering Black Learners*. Halifax, NS.

Bell Hooks. (1993) “A Revolution of Values: The Promise of Multi-Cultural Change”, *The Journal of the Midwest Modern Language Association*, Vol.26(1), Cultural Diversity, pp. 4-11.

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Carol O'Neil and Suzanne Le-May Sheffield

Carol O'Neil's Retirement

In May, the Centre for Learning and Teaching bade a fond farewell to Carol O'Neil, Associate Director, upon her retirement from Dalhousie University. Having worked at Dalhousie since 1990 Carol's responsibilities were wide-ranging. Over the years many faculty and graduate students benefitted greatly from her extensive experience and wise counsel as an educational developer as they sought her input when planning new courses and experimenting with teaching and learning innovations. Others consulted with her about Student Ratings of Instruction and innumerable instructors both at Dalhousie and elsewhere read her co-authored *Recording Teaching Accomplishment* as they prepared

teaching dossiers for job applications, tenure, promotion, and re-appointment. As Manager of Instructional Media Services, Carol was instrumental in a significant number of classroom design and re-design projects in concert with Facilities Management and was a supportive collaborator on many teaching and learning with technology projects. Carol's commitment to enhancing student learning was infectious. She will be much missed at Dalhousie, especially by her colleagues here at CLT. We wish you many happy years of retirement, Carol!

Hidden Jewels

An experiential research opportunity for students



*by Kathy Petite
Research Coordinator
Atlantic Centre of Excellence for
Women's Health*

The Atlantic Centre of Excellence for Women's Health (ACEWH) is one of four Centres of Excellence for Women's Health across Canada. Through the Faculty of Health Professions, Dalhousie University serves as the administrative host of the Centre, which first opened in Halifax in 1996. As early as 1997, the Centre's understanding of how best to elicit new knowledge on women's health was clear. Research would require consultation with women from diverse backgrounds including women marginalized by society or at different stages of the lifecycle in order to include perspectives that were often excluded.¹

The Atlantic Centre of Excellence for Women's Health has been at the forefront of research design and policy development that embraces a gender lens, which is "a means to consider ways in which gender interacts with other health determinants in research, policy and planning, [and provides] an opportunity to bring research to decision making by broadening the scope of evidence."² Whether

in quantitative and qualitative data, during workshops and consultations, or at meetings and roundtables, the presence of ACEWH guarantees that a strong emphasis on gender-based analysis is accounted for in order to improve the health of women everywhere.

Throughout its years of operation, the ACEWH has provided training for future academic researchers, community workers, policymakers and representatives of women's health concerns. It is crucial to educate the next generation conducting quality research on women's health in order to formulate appropriate policy. The ACEWH is well positioned to offer training and mentoring opportunities for undergraduate, postgraduate and post-doctoral students who are socially conscious and committed to furthering women's causes.

Over the past 14 years, research assistantships at the ACEWH have been offered to many students interested in gaining experience in fields related to women's health, both research- and policy-oriented. Support offered by the ACEWH includes undergraduate and graduate student supervision, work placement positions, field experience, focus group facilitation, conference presentation sponsorship and co-authorship of publications. Co-hosting international youth interns with the Human Sciences Research Council of South Africa is one example of exciting opportunities,

both domestic and international, available to young researchers and future policymakers at the ACEWH.

In the past, students have come to us from a variety of disciplines including Social Work, Nursing, Health Promotion, and International Development Studies. Placement is often determined from an interview with individual students where their interests are explored to ensure a good fit with the current workplan at the Centre. When students are doing a placement to meet a course requirement, they work with their class supervisor to ensure the assignment meets the needs of their academic program.

Students have been involved in a variety of projects with ACEWH that have included working with women's centres, a contract with the Department of Community Services on social and economic inclusion, and funded research projects such as The Lone Mothers project and Healthy Balance. The tasks students engage in also cover a large range of activities, such as assisting with focus groups, literature reviews, funding proposals and ethics applications, attending community meetings, organizing workshops and conferences, and creating posters and brochures.

The Centre also has an established record of offering publically accessible presentations, workshops, and conferences that engage individuals from diverse backgrounds in a participatory

exchange of ideas and information on a wide variety of topics relevant to women's health. Such Centre activities can provide opportunities for students. Recently, building on considerable expertise in the area of sex- and gender-based analysis (SGBA), ACEWH published *Rising to the Challenge* (Clow et al., 2009), a book that describes the SGBA process and offers a collection of case studies and commentaries that illustrate SGBA in action.

After successfully offering workshops across the country last year to groups and organizations working on policy, planning and

research, the Centre is currently developing a companion workbook to complement the SGBA guide. Use of SGBA in research projects is not only best practice but is often a requirement by many funders such as CIHR. Working with ACEWH on this or other projects helps to ground students' understanding of SGBA.

While working at the Centre, students are supervised and mentored by a staff member who provides direction as needed but also encourages initiative, independence, and critical thinking. Although this adds to the Centre's workload, in our experience these relationships have been mutually beneficial. This experience provides skills that build resumes and CVs and also gives students a chance to take classroom learning into meaningful real world experiences. These experiences

also provide opportunities for placement students to come back and work with us in paid employment such as research assistantships.

Several former research assistants have gone on to doctoral studies, government positions, clinical research pathways and policy development roles at

local, regional, provincial and federal levels. It is a testament to the academic rigour and population health approach to policy demonstrated by the ACEWH that so many different sectors are seeing the benefits of

the latest in research and policy findings relevant to women's health. The Centre will continue to support and nurture all those interested in promoting women's health, and in so doing, contribute meaningfully to the spectrum of women's health in Atlantic Canada, across the country and abroad.

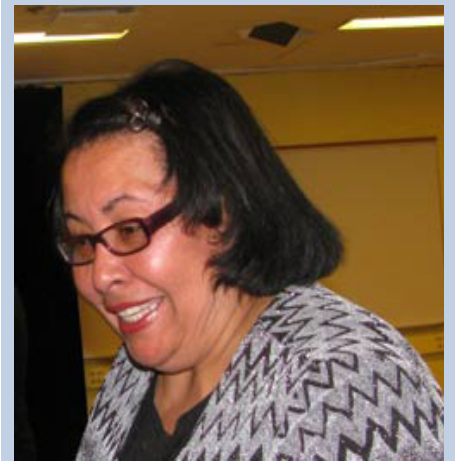
If the work of the ACEWH sounds interesting to you as a student, faculty member, or advisor, consider contacting us to find out more. We would be happy to answer any questions and explore opportunities to work together. For more information please contact: Kathy Petite, Research Coordinator, kathy.petite@dal.ca or 494-7856.

Footnotes

¹1997 Workplan. n.d.

²Saulnier, C. & J. Moloney (2007). *Gender Mainstreaming Concepts and Implications*. Health Promotion Course 1006.

"It is crucial to educate the next generation conducting quality research on women's health in order to formulate appropriate policy."



Happy Retirement, Linda!

After many years of dedicated service, Linda Oliver, the clerk for Instructional Media Services (IMS) and the Center for Learning and Teaching, retired on July 1, 2010. Linda was often the first point of contact for faculty and students coming into the IMS office and with her accommodating manner, assisted clients in the pick-up, return, and tracking of equipment.

Always willing to offer a kind word and a smile during busy class changes, Linda also assisted student assistants on departmental procedure, and was recognized as having extensive knowledge on policy matters related to the day-to-day operation of the IMS audio-visual section.

Linda also provided clerical support for the video production section of IMS. She assisted in ordering equipment and supplies and was very effective in following up on production details, as well as tracking account numbers for invoicing.

Linda will be fondly remembered by her colleagues at IMS and CLT and has the sincere wishes for future endeavors from all the staff that had the pleasure of working with her over many years of service.

Upcoming CLT Events

Registration is free! Email CLT@Dal.Ca or call 494-1622 to register.

Building Bridges: Teaching International Students in a Canadian Classroom

January 26, 2011 • 9:30 to 12:00 • Killam Library, Room B400

Kathi Thompson, M.Ad.Ed., ESL Specialist

The increased number of international English Foreign Language (EFL) students on campus makes Dalhousie an exciting microcosm of our current global environment. How does this growing EFL population impact our classrooms? Are they a rich and exciting contribution to a classroom OR creating stressful demands on your teaching?

Join ESL Support Specialist, Kathi Thompson, in a workshop designed to explore both sides of this question. In it, we will examine:

- challenges faculty face engaging international EFL learners in the classroom
- obstacles students have adapting to academic life in Canada and in their daily life
- teaching and learning success stories
- practical tools to integrate into teaching practice

If you would like to explore ideas, questions and practical methods of engaging international students in your classroom, please attend.



Making Connections Between Culturally Different Students and Faculty

March 8, 2011 • 9:30 to 12:30 • Killam Library, Room B400

Dr. Lionel Laroche, Ph.D., P.Eng.



This workshop examines the impact of cultural differences on foreign students and on the faculty and staff members with whom they interact, both during their studies at Dalhousie and upon graduation. Starting with communication style differences and moving into more complex (and usually less frequently identified) differences related to reporting relationships, team work and problem-solving, this workshop explores some of the common challenges that foreign students often face when they study in Canada, as well as the challenges that Canadian staff and faculty members experience when they teach or manage them during their studies. This session will help everyone involved understand better how others think, behave and communicate in a wide range of situations frequently encountered in universities and will suggest practical approaches to turn these cross-cultural challenges into strengths.



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