TRENT UNIVERSITY
Showcase
LEADING EDGE TEACHING AND RESEARCH
KNOWLEDGE MOBILIZATION EDITION
FALL 2013

The Evolution of a Research Collective

When Dr. Chris Furgal decided to unite his group of diverse graduate students and research assistants under one umbrella several years ago, he had no idea that the group would evolve into the dynamic formal research collective it has become today.

"These students, like me, are doing research which lies at the intersection of different disciplines and topics, so they don't easily fit in one discipline," says Professor Furgal, a professor in Trent's Indigenous Environmental Studies program, who is cross-appointed between the Environmental Resource Science/Studies and Indigenous Studies Departments. "When I first formed the group, the intention was to provide a common collective and a supportive environment for graduate students and young researchers. It evolved when my students wanted to contribute and take on more, even above and beyond simply sharing their experiences and getting support for their own thesis projects."

The graduate students, research assistants and post-doctoral fellows who make up the group are all studying or working under the supervision of Prof. Furgal and represent a variety of graduate programs, from the Indigenous Studies Ph.D. and the Environmental & Life Sciences M.Sc. and Ph.D., to the Sustainability Studies M.A. and the Canadian Studies & Indigenous Studies M.A programs. With 24 current members, the recently formalized Health Environment and Indigenous Communities (HEIC) research group is the second largest group of its kind at Trent.

Common Themes Unite Researchers

Inspired by the discovery of (sometimes surprising) commonalities between their research projects, students and researchers in the HEIC group gain motivation from the collective and interactive atmosphere the group provides.

"The group has facilitated and, to a degree, promoted common themes around research that no single student or researcher in the group could have taken on entirely by themselves," says Prof. Furgal.

Learn more about the HEIC group: www.heicresearch.com
Watch the video at http://goo.gl/pJolOa

This pooling of collective experience, together with facilitating an exchange of communication of what they are learning, means students in the HEIC collective are working together to achieve knowledge mobilization in the truest sense of the word.

Group Interactions Spark Knowledge Mobilization

Prof. Furgal explains that, while some students' projects directly explore issues of knowledge mobilization (for example, evaluating the communication of territorial health survey results to northern communities), knowledge mobilization is also a direct product of the interactions sparked within the HEIC group itself. A prime example of this is a new collective research paper, authored by members of the HEIC group around the importance of relationship in conducting research with and in Aboriginal communities, and how to communicate about this issue to different audiences and in different forms.

"Good, ethical, responsible relationships are a goal and hopefully a result in our work with communities …"

"Our relationships with the communities we work with is something we spend a lot of time discussing and learning about in the group and in our individual projects," says Prof. Furgal. "It ties in directly with issues of research ethics and social responsibility. Good, ethical, responsible relationships are a goal and hopefully a result in our work with communities; they are not just a means through which we gather our data – and this is something we recognize and respect. We have learned a lot about the importance of relationship in the research we do and the group wanted to explore ways of sharing our collective learning on this topic with a broader audience."

Taking Research Public

Highlighted in the paper, which has been submitted to the journal *The Canadian Geographer* for publication, are direct learnings from the research projects and experiences of several HEIC members. These projects include: a study on the ecology of a hunted population of beluga whales in the Arctic using both science and Indigenous Knowledge; an examination of goose ecology in a Northern Ontario First Nation where the management of the species could have potential impacts on the needs of residents who depend on the resource for food and culture; a study about the role of Indigenous Knowledge in developing environmental policy in Northern Labrador; and an examination of the implications of climate change on accidents and injuries while traveling on the sea ice for residents of an Arctic Inuit community.

Speaking of the common issues discussed in the paper, Prof. Furgal says: "It's not just about the importance of relationship in getting the research done respectfully, but about how to communicate that importance to other researchers. My students recognized this critical element in their work and came together to share their experiences on this topic and learn from one another. This resulted in their creation of a collective research paper on this topic that draws on a diversity of related experiences they have had as young researchers. This opportunity came about as result of being part of this research collective. Together they have reflected on commonalities in their research to identify issues, generate possible solutions, and share their findings."

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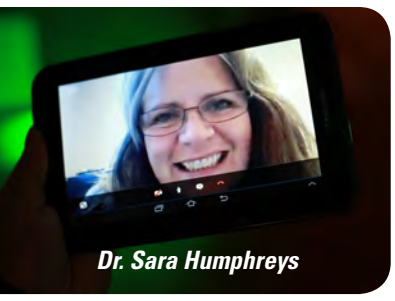

Dr. Sara Humphreys

Welcome to "Digital Communitas": Trent Website Provides Global Forum for Technology and Education

What better way to learn early modern text than by having students tweet it in conversation with each other? If you're part of the current "NetGen" demographic, born between 1980 and 2000, it's an ideal approach. The NetGens are wired to be multi-taskers due to exposure to digital technology during their formative years of development. Facebook updates, tweets and online chats often happen simultaneously. In order to reach this fast-paced generation, the exploration and use of the latest technology is crucial.

For educators, students, creators and technology users who want to know how to access technology, effectively harness its power, and make it work in the world of academia, a thought-provoking virtual meeting place called Digital Communitas will be a welcome development. Led by Dr. Sara Humphreys, an assistant professor in the Department of English Literature at Trent University Oshawa, the site hosts scholarly articles. It's a place where technological and educational visionaries reveal their expertise through online interviews. Educators and students post their personal experiences. The information is accessible and the dialogue inclusive. As the editor and project leader of Digital Communitas, Professor Humphreys quickly saw the site transformed into a clearinghouse of information examining how people use digital tools in research and in the classroom.

Demystifying Technology

Prof. Humphreys believes that knowledge mobility is really about accessibility and taking information learned in the ivory tower and moving it to the street in a way that's accessible and responsible. "This site is important," she says. "A lot of people are doing these fantastic things in research labs and digital media zones. This is a site where teachers and researchers can go and gather. I'm hoping it empowers users in their use of media in the classroom and in their research, and inspires them to make research accessible."

Digital Communitas also has a significant research component. The views expressed in the posts collected on the site are part of a research project examining the use, creation and implementation of digital technologies in the classroom. An in-depth investigation into the proliferation of "digital media labs" or "zones" in Canadian universities will also be published through a series of blog posts. Possible plans for the future include the production of an interactive eBook showcasing the research results.

"I'm hoping it empowers users in their use of media in the classroom and in their research and inspires to make research accessible."

Trent alumnus and research assistant, Allen Kempton is conducting the digital lab research project. "What drew me to the project was the opportunity to do real-world applications of theory and technology," says Mr. Kempton, who is pursuing a Master's degree in Sociology.

Where the Luminaries Gather. Virtually.

Throughout the site, scholars and media luminaries weigh in on the topic of technology and education. Trent chancellor Don Tapscott, who is recognized as one of the top business thinkers in the world, conducted an interview for the site emphasizing the importance of technology for today's students. To view the video, visit: http://digitalcommunitas.wordpress.com/how-to-videos/don-tapscott/ .

Site research assistant, Sara Gallagher is a student in the M.A. English (Public Texts) program. "Our site shows how technology can be successfully incorporated into learning and the student's role in innovating how they manage and use what they learn," Ms. Gallagher says. "It's exciting to think what digital media can offer that other technologies cannot, including project development, networking, and interactivity on a level that has never been seen before."

Digital pedagogy and knowledge mobilization are high calibre words. They describe the marriage of limitless technological resources and research and its responsible delivery to eager learners. The Digital Communitas website, funded by Trent's Instructional Development Centre and Research Office, is a new portal where technology and education collide and collaborate. The online discussion to be found at Digital Communitas is fascinating, the future implications, astounding.

http://digitalcommunitas.org

Experiential Learning: Gaining Valuable Skills through the Trent Centre for Community-Based Education

If Trees Could Talk

Heritage trees provide far more than a pretty canopy on a quaint street. They offer shade, shelter, cleaner air and savings on electrical bills. Trees can also talk. They share the hidden stories of long ago and commemorate personal and community milestones.

Jasmine Cabanaw is a fourth-year History student. Through the TCCBE, she is working with the local environmental organization GreenUP on a book entitled, *Beneath the Canopy: Peterborough's Urban Forest and Heritage Trees*.

The book is a collection of stories and photos gathered from local residents that shares the scientific, cultural and historic anecdotes of Peterborough's most memorable trees.

Faculty Support Helps Meet Community Need

Ms. Cabanaw's studies at Trent complemented her work on the book. An essay she wrote as an assignment about the historical significance of the trees at Trent's Sadleir House was translated into a photo essay that will be included in the publication.

"The book is a very creative project encompassing elements like photography, storytelling, and design," she says. "It has also been an important learning experience for me and has shifted my perspective. My supervising professor, Finis Dunaway, assigned some very informative readings. For example, I was unaware of the cultural concept of wilderness and forests prior to this course."

Sheryl Loucks is the book's editor for GreenUP. She says, "Trent's archives, historical data, and the course materials regarding community history have been a great asset. The book will credit Trent resources and is a great way for the public to see how this wonderful institution is benefiting the community. The quality of Trent students and of the departments that support them made this collaboration an excellent choice. Trent fosters creative thinking, inquisitive students, that we knew would be of value to us."


Book editor Sheryl Loucks

Knowledge Mobilization through the Trent Centre for Community-Based Education (TCCBE)

The TCCBE is an excellent example of how Trent enables knowledge mobilization in its surrounding communities. This dynamic Centre brings together talented Trent students and faculty with local organizations to create community-based research, community service learning and experiential education opportunities. The TCCBE provides students with exceptional opportunities to lead research projects that help small, not-for-profit groups to move forward on essential initiatives – from cultural events to social service interests to projects related to environmental protection.

Projects like Ms. Cabanaw's and Mr. Lehman's allow Trent students to contribute in a small but important way to processes of change and innovation that are ongoing in our community. At a broader level, many of the projects that the TCCBE helps facilitate enable local organizations to undertake their work with better background research and planning.

Students working with the TCCBE gain skills highly valued by today's employers, by regularly conducting literature reviews, key-informant interviews, surveys, program evaluations, and other research activities that help organizations move forward better-informed and with a greater likelihood of success.

ReFraming Film History

Today, watching movies is something we do more and more at home and on our portable digital devices. Although viewing in recent years has become a private affair, this was not always the case. Going to the movies has changed dramatically over the past century. From opulent theatres to drive-ins to multiplexes, Peterborough once had a vibrant and varying movie scene.


Graduate student Eric Lehman

A new exhibit being researched by Trent Master's student Eric Lehman, will enable local residents to learn how a film-going public in Peterborough was formed through the history of its theatres and the stories of the people who worked in and attended these venues. The TCCBE project counts as a course credit toward Mr. Lehman's M.A. in English (Public Texts) at Trent. Not only was he able to apply the considerable research skills he has gained in part from his Master's work; but he has also made a significant contribution to a valued local festival.

The well-known ReFrame Film Festival provides educational opportunities about social and justice issues through films created by local, national and international filmmakers.

Renowned and important directors John Greyson, Richard Fung and Alanis Obomsawin have showcased films and attended the ReFrame Film Festival (2005-present). Decades earlier they came to the Canadian Images Festival (1978-1984) as less experienced, emerging filmmakers. Widely-respected Trent Professor Emeritus John Wadland was instrumental in the creation of the Canadian Images Festival and is currently involved with the ReFrame Film Festival. Roots between the festival and Trent run deep.

Through the TCCBE, Mr. Lehman worked on the installation about the film history of Peterborough for the festival alongside local historian, Robert Clarke and was guided and mentored by Professor Emeritus Wadland and Dr. Michael Eamon, principal of Lady Eaton College. Krista English of ReFrame and Brittany Cadence also sat on the committee.

Mr. Lehman said, "I think the TCCBE's outreach has made an unbelievable impact in Peterborough and it is tremendous that they are looking for projects that serve a community need and link it with faculty and the experience of Trent's human resources."

Mobilizing Math

Dr. Cathy Bruce Wins Provincial Teaching

"Knowledge mobilization is not about passing on information," says Dr. Catherine Bruce. "It's about taking what we have learned and extending it to wider groups of people in ways that are relevant and actionable."
An associate professor in the School of Education and Professional Learning, Professor Bruce coordinates and instructs the mathematics program, helping teacher candidates better understand math, not only preparing them to teach the subject, but also to really enjoy it. At a time when math teaching is under fire in the media, Prof. Bruce is so widely recognized for her innovative methods, she was recently named one of Ontario's most outstanding university teachers by the Ontario Confederation of University Faculty Associations (OCUFA).

Closing the Gap, Building Capacity

"What is the purpose of educational research unless there is action? Our goal is to close research practice gaps in education by having researchers and practitioners work together," says Prof. Bruce. This approach to sharing knowledge is reflected in her research, which focuses on helping teachers do a better job of teaching children to understand mathematics. She explains that a current research project on more effective methods of teaching fractions is illustrative of how knowledge mobilization works on multiple levels. The project involves a team of researchers who collaborate with teachers in the schools, trying out different ways of representing fractions, which are captured and analyzed on video.

"Our goal is to close research practice gaps in education by having researchers and practitioners work together."

"By working directly with teachers, we are building their capacity to more effectively teach fractions, so they benefit by participating in the research," explains Prof. Bruce. "Then the digital assets created during the research are being made publicly available online, along with bundles of lessons and other resources which were field-tested by the teachers. And I am taking the research back to my teacher candidates at Trent, so they will also be learning from the experience of Ontario teachers. There are layers to how the research learning is mobilized."

Unlocking the Teaching Potential in Technology

The role that technology can play in creating and mobilizing knowledge is being further explored in Dr. Bruce's research project, funded by the Social Sciences and Humanities Research Council, in which researchers and teachers are working together to collect and analyze digital video data. "We are filming clinical interviews of children with their teachers and analyzing them to understand what the child is thinking mathematically and using that knowledge to plan lessons and units of study," says Prof. Bruce. "We are also video recording teachers as they give math lessons in the classroom, then asking them to watch themselves and provide a commentary on what was happening. This provides immediate learning for the teacher, and afterwards, the videos can be shared online so that other teachers benefit."

Prof. Bruce sees technology, like web-based materials, digital resources, and interactive white boards, as having infinite potential in creating and sharing knowledge. "Our goal is to get new knowledge out there in ways that are meaningful – that's where the digital video comes in to play, because you can see and hear in a real context," she says. "I think we've underestimated the ability of technology to help people learn, to understand, and to problem solve. It's used more as a tool for entertainment and consumption, but we've got to get past the 'wow' factor and into the 'how' factor – how can technology help our students and what can we do to make it more powerful to support their learning?"

Visit Prof. Bruce's website at: www.tmerc.ca or follow her on Twitter @drcathybruce

OCUFA award-winning professor Dr. Cathy Bruce

Student Praise for Dr. Cathy Bruce

"She inspired us to look at math in a way that we'd never thought to. Her positive spirit was contagious. A weak math student in my elementary years, I was personally inspired to become a math teacher, and to teach it in a way that made my students truly enjoy math. Cathy had ignited a flame inside of me that made me excited to help and inspire my students."

"Cathy inspired me to change the trajectory of my career, and has made mathematics education a life-long passion."

"She opened the world of exploration, inquiry-based problems, collaboration, technology and conceptual understandings in mathematics."

A Good Life:

The Knowledge Within Urban Aboriginal Communities

Mino-bimaadiziwin is an Anishinaabe phrase that means fostering a good life. The concept provides a research framework for the Urban Aboriginal Knowledge Network (UAKN), says Professor David Newhouse, associate professor of Indigenous Studies and Business Administration, and chair of Trent University's Department of Indigenous Studies. Prof. Newhouse is the lead researcher for UAKN, which was formed to explore how Aboriginal people are building and living fulfilling lives in urban settings. Trent University received $2.5 million over five years from the Social Sciences and Humanities Council (SSHRC) to fund the initiative.

More than half of Canada's Aboriginal people reside in an urban area, but until recently there has been virtually no research on the experiences of urban Aboriginal people, explains Prof. Newhouse. "The premise of the research is that Aboriginal peoples have remarkable knowledge within our communities, which can be mobilized to improve daily life," he says. "We know that there are problems; the focus of our work is not the problems that we encounter, but the way in which communities come together to address these problems. We are trying to uncover the knowledge that is available within urban Aboriginal communities and use it to inform government policy and influence the development of programs and interventions by local agencies. The overall objective is to help create better lives for Aboriginal people residing in urban settings. Our national partner, the National Association of Friendship Centres, has been working at this task since the early 1970s."

Prof. David Newhouse, lead researcher investigating how Aboriginal people lead " a good life" in urban settings.

"Aboriginal peoples have remarkable knowledge within our communities, which can be mobilized to improve daily life."

A Model for Collaboration

The research project, which is entering its second year, is a model of collaboration. It brings together local Aboriginal groups with researchers, government agencies, and local NGOs who have an interest in urban Aboriginal issues. "Our approach is to build connections at the local level," says Prof. Newhouse.

UAKN currently has fifty-seven partners, including a lead partner: the National Association of Friendship Centres, which is helping to facilitate community research through local friendship centres. "We don't initiate the projects as a national council, but we work with local friendship centres and help them to identify projects based on their local needs. It is truly community-driven research," he says, pointing out that the concept of *mino-bimaadiziwin* can differ from community to community according to their priorities.

Ten local projects are currently underway with more to come. They are overseen by host institutions in four regional centres: Atlantic (University of New Brunswick); Ontario (Trent University and University of Sudbury); Prairies (University of Saskatchewan and University of Winnipeg) and the West (University of Northern British Columbia).

"Because every community has different needs. there is a wide diversity in the research projects across the country," says Prof. Newhouse. "Each project examines a different aspect of the urban Aboriginal experience. For example, in Sudbury we're exploring the development of an urban Aboriginal middle class, while in Thunder Bay we're looking at the ways in which the local friendship centre and non-Aboriginal agencies can stimulate the development of a local Aboriginal economy."

The involvement of academic institutions from across the country provides a multi-disciplinary approach says Prof. Newhouse. "We have researchers from a diverse group of disciplines including Urban Studies, Geography, Law, and Native Studies. Of course, the Indigenous Studies program at Trent is multi-disciplinary. Other universities and disciplines are also beginning to come on board."

Transferring Knowledge

Prof. Newhouse stresses that a focus of UAKN is on transferring knowledge from urban Aboriginal people to agencies, indicating that senior levels of government have identified knowledge gaps with respect to urban Aboriginal people. Although the project is in its early stages, the process of transferring learning has already begun. "In the past year, the researchers made presentations to regional friendship centre associations on their findings," he says. "Locally, we're asking friendship centres and researchers to make presentations to city councils, social service agencies, urban Aboriginal councils, social planning councils and senior levels of government."

As the project unfolds over the next four years, Prof. Newhouse also sees the opportunity for Trent University students to become involved.

Information on the Urban Aboriginal Knowledge Network can be found at www.uakn.org.

Legally blind Physics student Ryan Cole demonstrates new technology which allows him to see his research in a whole new light.

Breaking Barriers: Realizing a New Vision

One Trent student's journey to pursue a degree in the field of study he loves most, despite the restrictions of a personal disability, is helping to change the landscape of learning for future students.

Ryan Cole, who has been legally blind since birth, but has limited vision, came to Trent four years ago to study Chemical Physics. He chose Trent largely because the contacts he made early at the University assured him they could find ways to assist him in his educational pursuit.

As a student entering university with an impressive 95% average, Mr.Cole was welcome to attend whichever school he chose, but the larger universities who boasted about their top science and math programs all gave him the same response: "They told me I was welcome to come, but that they didn't really know how to deal with a student who is legally blind who wants to study science," Mr. Cole recalls, remarking on the rarity of students with disabilities pursuing degrees in the sciences. He notes there is often a tendency to steer them into the arts and social sciences. "There isn't really a braille option for quantum mechanics," Mr. Cole quips.

A subsequent survey conducted by Professor Emeritus Dr. Alan Slavin of the Trent Physics Department, Mr. Cole's first-year instructor, also revealed how unique Mr. Cole's situation is. According to the survey, there has been only one other legally blind student has studied university physics in Canada in the last 12 years.

"Like other universities, Trent didn't directly know how to accommodate for my needs, but unlike the other universities, Trent's response was: 'We'll do whatever it takes,'" Mr. Cole says. "It was like a breath of fresh air."

That willingness to "do whatever it takes" has led to a world of new opportunity for Mr. Cole at Trent. Support, guidance and funding from the Student Accessibility Services Office has translated into the discovery, purchase and application of new technology that has allowed Mr. Cole to take his own notes as well as conduct vital lab work on his own, both for the first time.

Technological Breakthrough

When Mr. Cole decided to major in Chemical Physics, it was imperative for him to conduct the lab work himself. Having already experimented with a variety of aids, including an unsuccessful braille translation of a first-year calculus textbook and the more successful acquisition of a projector that made the text in books and on exams large enough for him to read, Ryan carried out an intensive search for new piece of technology that would open up a new world of opportunity.

"Most blind students don't know this technology exists. We want to spread the word so others can know about the opportunities available."

Mr. Cole describes the high resolution camera that acts as a powerful electronic magnifier, which he found online in his second year and purchased through a Bursary for Students with Disabilities, as "quite possibly, my favourite piece of equipment ever." The camera, which is mounted on a mobile articulating arm and works in conjunction with a large monitor, allows Mr. Cole to keep his hands free to take notes and undertake lab work.

"My strong suit has always been theoretical work; it had to be. So until my second year of university, I had never done any solo lab work," Mr. Cole says, explaining how he always had a seeing lab partner to assist him. "But to get a degree in Chemical Physics, I really needed to be able to do certain tasks and lab work on my own. I had a lack of experience with experimental work but this technology opened up a whole new world for me."

Taking Research to the Next Level

Before and after the acquisition of the new equipment, Mr. Cole has excelled in his courses at Trent, winning most of the top academic prizes in his program. In addition to receiving free tuition by achieving an average of over 90% each year, Mr. Cole has also been awarded the Lodge Physics Scholarship two years in a row for attaining the highest average in his year in the program, as well as the R.B. Johnson Prize for quantum mechanics, the Breukelaar Prize for Laboratory Proficiency in Physics, the Peterborough Professional Engineers Wives' Prize, and the LEC Fellows Prize.

Most recently, Mr. Cole was awarded a prestigious Undergraduate Student Research Award (USRA) through the Natural Sciences and Engineering Research Council (NSERC), which allowed him to work this past summer alongside Trent's Canada Research Chair in Physics of Biomaterials, Dr. Aaron Slepkov. With Professor Slepkov, Mr. Cole is working to set up a new state-of-the-art laser lab at Trent which will be devoted to characterizing and imaging biomaterials.

Speaking of Mr. Cole and his work, Prof. Slepkov says: "What is special about Ryan's USRA is that he had not considered applying for one before his fourth year because he didn't envision himself working in a research lab. He indicated to me that he thought it would be inaccessible to him and that possibly professors wouldn't see him as someone who could/or should do research. Working with Ryan has changed my expectations for what an inexperienced but engaged summer student can accomplish."

Spreading the Word

Mr. Cole and Professor Slavin are now working to spread the word about what this enabling piece of technology can do for other potential students in Mr. Cole's situation. This past summer, the pair published a peer-reviewed article in the *Journal of Visual Impairment and Blindness*, focused on the camera and how it is being used in university context for a student in sciences.

"I get annoyed with the social push for blind people not to pursue study in math and science. It's a real loss." Mr. Cole says. "Most blind students don't know this technology exists. We want to spread the word so others can know about the opportunities available.

"You have to do what you love," he adds, "Sometimes it's hard. It was hard for a legally blind person who loves Chemical Physics, but you have to fight for it."

Climate Change Mapper Bridges Gap between Science and Stakeholders

Dr. Raul Ponce-Hernandez is preoccupied with the transfer of knowledge. "There is a huge information gap between what scientists know, and what the public and policy-makers know, regarding the impacts of climate change," says the professor of Environmental and Resource Studies and Geography. As a member of a working group of the UN Framework Convention on Climate Change, Professor Ponce-Hernandez has viewed climate change scenarios, some of which he describes as dire. "Although there is a band of uncertainty to these scenarios, and they may be unpleasant and scary for some, it's important that people know about these things so we can figure out how to adapt to the changes that will occur."

"We need to first close the gap between what science and what stakeholders know. Then we need to transfer knowledge to the public."

That's why Prof. Ponce-Hernandez is excited about the prototype online tool he and his students have developed for mapping climate change impacts on agriculture in Ontario. It represents a useful example of how scientific knowledge can be made available to practitioners to help them understand the impacts of climate change and to help them make appropriate policy decisions.

The Climate Change Mapper takes sophisticated calculations from general circulation models of the atmosphere and down scales them to one kilometer square areas along with local estimates of rainfall, evaporation, and temperature. Using crop growth models, it maps out crop growth and crop yields, to predict how they will be affected by future changes in the climate. The tool allows the user to choose from different climate change scenarios – benign, medium, and severe – to view a range of possible outcomes, along with a level of probability.

Online Tool to Empower Everyone from Farmers to Agencies

Prof. Ponce-Hernandez says governments and industries are very receptive to the tool, citing the positive response he received for his presentation at a recent symposium of the Ontario Climate Consortium (OCC). He sees the OCC, which brings together research scientists and government agencies, as an ideal platform for promoting the Climate Change Mapper. "The purpose of OCC is to link science, policy and community, and serve as an umbrella under which we can transfer knowledge," he says.

"Eventually, the tool will be online and available to everyone, from farmers to agencies, who want to check the agricultural impacts of climate change. It's important to demystify the complexity of general circulation models, as part of the knowledge transfer process."

Although the Climate Change Mapper is currently focused on agriculture, Prof. Ponce-Hernandez points out that it can be adapted for other research at Trent. "The procedures for generating and downscaling spatial-explicit data can be used in different models, such as one that shows where water will go, accumulate and create floods." He cites the example of an incoming grad student, whose thesis will focus on developing flood risk scenarios for the Central Lake Ontario Conservation Authority.

Info Transfer through Townhall Meetings on Climate Change

Prof. Ponce-Hernandez hopes to start the process of information transfer to public audiences by organizing, with the support of the OCC, a series of local and regional "town hall" public information meetings on climate change, with the first scheduled for January 2014. He expects to be able to present the prototype Climate Change Mapper at that time. "We need to first close the gap between what science and what stakeholders know. Then we need to transfer knowledge to the public. This is where we have been lagging behind. We know these climate change events are occurring, but how do you make them visible and accessible so anyone can look at these scenarios?"

SAVE THE DATE

Join us for the first OCC town hall public information session:

Underestimating the Impact of Climate Change in Peterborough and the Kawarthas

Wednesday, January 22, 2014

Market Hall, Downtown Peterborough

The Climate Change Mapper can be viewed at http://www.clic-on-agric.info/simulations.htm.

What is Knowledge Mobilization?

knowledge applied to action to help facilitate real-world impacts on policy and society

"The purpose is to link science, policy and community."

"When students interact with industry partners, they appreciate what they bring to the table."

moving available knowledge/research into active use

"It inspires them to make research accessible."

taking research into public domain

connects research and researchers with people and organizations seeking to develop sustainable solutions to social, environmental, economic and cultural challenges

bridging the gap between research, policy and practice

proactive process that involves specific efforts to build relationships between research producers and users, such as formal and informal events, networks, and collaboration on resources for research use

process from the creation of evidence to its ultimate impact

getting research out into real world applications

recognizes that organizing one's own intellectual capital does not necessarily lead to innovation or change

knowledge sharing between research producers and research users

collaboration

implicit in the concept is the need for working relationships with others

emphasizes purpose (meeting needs) and looks to how one brings in the knowledge of others

"What is the purpose of educational research unless there is action?"

KMb

"It's all about being responsive to community."

Because research matters!

knowledge mobility is really about accessibility and taking information learned in the ivory tower and moving it to the street in a way that's accessible and responsible

INVESTING IN TRENT

Donation of Oven Bakes Up Clear Air and Water Solutions

Dr. Andrew Vreugdenhil with graduate student Jayme Stabler

Combine market opportunity, positive environmental impact, technology and research together. Bake at 1200 degrees Celsius until new processes, new product and new knowledge are achieved. Thanks to a generous donation of a new Sentrotech STTR 1200, (a state-of-the-art rotary oven), Dr. Andrew Vreugdenhil's inorganic materials research laboratory is making research red hot.

The research capabilities of Trent University and the business acumen of the oven's donor, Sittler Demolition and Environmental (SDE), are joining forces to create a product that will turn wood scraps into biochar and activated carbon that can be used to clean water and air.

One of the core businesses of SDE is demolition. The company takes a sustainable view to its business practices and is aligning with Trent to research a new use for the wood debris removed from demolition sites. Currently wood remnants can be turned into mulch, animal bedding or boiler fuel. Often the wood scraps are destined for the landfill.

With the oven now in place, the goal of the research is to use it to transform these reusable scraps into a product destined for a wider, more substantial market and with a greater positive impact for the environment. The product will be an absorbent material that can be used to clean up unexpected spills, to help in cleaning municipal water and air purification. Activated carbon required for this type of application is usually made from coal.

Students Interact with Industry

Professor Vreugdenhil is an associate professor of Chemistry and the director of the Materials Science graduate program. He was thrilled when SDE contacted him at Trent for his research expertise. He also feels his students can benefit from being exposed to the process. "When students interact with industry

"When students interact with industry partners, they appreciate what they bring to the table."

partners, they appreciate what they bring to the table. They see that it is exciting chemistry, but learn to ask the question: Is it commercially viable? Just being made aware of some of the issues is tremendously valuable to our students."

The new oven along with the SDE partnership will enable Trent to continue to research new protocols and processes in ways that have never been done before. The oven heats up to 1200 degrees Celsius and provides a more dynamic environment than a standard oven that simply provides static heat. Materials can be rotated and agitated in a manner that creates new chemical reactions within test materials. Raw material goes in and potentially a new, beneficial product comes out.

Learning the Business of Science

Vice president of new products at SDE, Paul Pede has always been a proponent of supporting local resources and felt that Trent was a natural place to turn to investigate and collaborate on the project. The donation of the oven serves as a lesson in research and technology for Trent students. The outcome of the research and its possible implementation into the market makes the leap from work in the lab to a solid business application.

In terms of learning both the science and the business aspects of the project, Mr. Pede says, "If you can see how what you're studying is applied, I think it creates a better frame of reference and context."

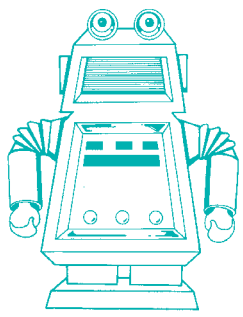
Goes Mobile

(knowledge mobilization, that is)

Learning with Robots

What could be better for a nursing student than practicing on a real, live patient? How about practicing on a high-fidelity simulator that looks and acts like a real, live patient? That's what Ph.D. student and professor of Nursing Jane Tyerman will be exploring when she begins simulation research with students enrolled in the B.Sc.N. program. The research, which begins January 2014, will focus on unresponsive patient scenarios.

The simulation will utilize human-like mannequins which can exhibit patient symptoms that can be remotely manipulated to respond to a student's actions. "We're allowing the student to apply the theoretical knowledge gained in the classroom, clinical, and lab into simulated, real-life experiences where there are no threats to the patient's safety," said Prof. Tyerman. "Using a simulator, a student can actively learn while we assess and discuss their actions and responses."

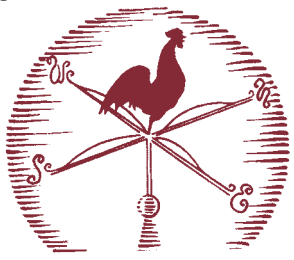


Prof. Tyerman will be evaluating whether simulation improves the nursing students' knowledge, self-confidence, and self-efficacy in dealing with unresponsive patient scenarios. The findings will be disseminated into the nursing curriculum. "The research will highlight which areas of theoretical content needs to be further enhanced, so students are knowledgeable and better-prepared to respond to these life-threatening situations," Prof. Tyerman said.

Localizing Climate Change Impacts

What could the potential impacts of climate change look like for local infrastructure, industries and environment? Dr. Stephen Hill, associate professor of Environmental and Resource Studies, and graduate student Lynda Langford developed a research paper for the Peterborough region which helped to make the findings relevant to local policy-makers.It also identified barriers to action and suggested strategies for adaptation planning. The research was conducted on behalf of the Sustainable Peterborough Working Group on Climate Change which included local municipalities and health and environmental organizations. The project was funded by MITACS and members of the working group.

"Our objective was to take what academics already understand about climate change and make it real for local politicians and policy-makers," says Professor Hill. "Partnering with the municipal working group helped to keep the research relevant to the local audience. As a result of the research, both the City and County of Peterborough are moving forward to develop a climate change action plan, and will use our research paper as a basis for obtaining further funding. This is a good example of conducting research in a way which mobilizes action."



Rethinking Memory Loss

Alzheimer's is a major disease that is of increasing concern as our population ages. But what if Alzheimer's and other forms of dementia are not diseases, but rather, a normal part of aging asks Dr. Stephen Katz, professor of Sociology, who is researching Mild Cognitive Impairment (MCI) along with Dr. Kevin Peters (Psychology) and Dr. Peri Ballantyne (Sociology). Their three-year project is funded by CIHR.

"Studying people with MCI may help us learn more about the early development of Alzheimer's, and assist in the creation of intervention strategies," says Professor Katz. "But we also need to question the medicalization of memory loss, and its negativizing disease model of causes, affects, losses and treatments. Perhaps we should be talking about the ageing mind in a positive sense – what is gained, what changes, and how we cope with memory loss."

Through focus groups and interviews, the researchers are giving a voice to patients, caregivers, doctors, professionals and experts, and are planning to share their research with professionals and public audiences at an upcoming symposium. "We hope such discovery can be useful to all stakeholders involved in healthcare for aging persons," says Prof. Katz, "and we hope to communicate that MCI is part of a larger cultural focus on aging."

Feeding our Food

Can smart use of manure, compost, worm castings, and other agricultural biowaste improve economic viability for agricultural producers and reduce environmental impacts? Dr. Mehdi Sharifi, assistant professor of Environmental and Resource Studies and Canada Research Chair in Sustainable Agriculture thinks so. Professor Shafiri's research focuses on improving the management of nitrogen and phosphorous in agricultural systems to advance environmental sustainability, protect the quality of soil and water, and increase economic returns for growers.

"Ecological-based nutrient management reduces excess nutrients in the environment which are susceptible to leaching to the ground water or runoff into rivers and water bodies. And by encouraging diversification of species in the system and less reliance on energy intensive practices, we can lower production costs and increase the chances of reasonable yield under climate change scenarios," says Prof. Sharifi whose research is driven by the needs of both food consumers and producers.

By collaborating with industry partners, such as the Grain Farmers of Ontario, Prof. Sharifi is able to disseminate his findings to an audience who can use his work to improve the economic viability of the industry while meeting consumer demands. And interest in sustainable agricultural extends beyond food: Prof. Sharifi is currently working with an Ontario company to improve the growing of hemp and medical marijuana plants under controlled conditions.

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