2015

Centre for Research and Innovation 10th Anniversary Booklet

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At Fanshawe, we aim to unlock the potential of our students, employees and community through a promise to educate, engage, empower and excite in everything that we do. Research activities play a central role in delivering on that promise. That’s why we have made a strong commitment to building and supporting the College’s capacity to engage in meaningful, innovative research projects, particularly with small and medium-sized enterprises (SMEs).

The Centre for Research and Innovation (CRI) is Fanshawe’s research office and industry’s gateway to the College’s expertise, state-of-the-art equipment and facilities, dedicated faculty and staff with diverse fields of expertise and the energy and fresh ideas of keen students eager to apply their knowledge to find innovative solutions to real-world problems.

Our research activities contribute to a growing company and can help your organization flourish. I encourage you to join the growing list of industry and community partners that have discovered the value of collaborating with Fanshawe.

Recognized as one of the top 50 research colleges in Canada, Fanshawe has set research and innovation as a priority component of an exceptional student experience. We strive to be the leader in research and innovation through full integration with the academic programs while continuing to grow partnerships with business, industry and community.

In 2012, Fanshawe piloted the creation of a research integration coordinator, whose function is to embed industry-driven tasks into the classroom and lab settings, giving students valuable real world experience. The outstanding success of that position has inspired similar positions throughout the College.

We believe that our concerted effort to incorporate research and innovation - whether it be applied, theoretical, community-based or creative research - into the curriculum of every program throughout the College is a unique approach for a Canadian college.
Fanshawe has been formally involved in research for 10 years. Over that time, CRI has participated in nearly 200 research projects, engaging more than 30 educational institutions and approaching 150 business, industry and community partners in Southwestern Ontario and beyond.

CRI is the one-stop-shop for the research and development needs of the region’s SMEs. Our highly qualified team works with external partners to develop innovative research projects and programs, serve as a liaison to external funders, and confront real problems with thoughtful and pragmatic solutions that help organizations achieve their goals, all while engaging and inspiring new generations of innovators.

We offer a full range of services including needs assessment and analysis, project development, proposal development, research, prototyping, product testing and validation and more. Please contact me to discuss your needs and ideas.

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meet the CRI team
In 2012, digital media marketing management company TecVana engaged students in Fanshawe’s Interactive Media Design and Production program for support developing a smart phone app aimed at helping small market communities and businesses grow and prosper by connecting and engaging with the digital generation.

The Geo Adventuring app promotes rural tourism by letting users find and create their own “adventures”, whether it be fishing, hiking or events. Populated with information from local businesses and tourism attractions, the app shows users where to go for new adventures based on their interests. Adventures are tracked with users keying in location codes giving users points they can redeem for promotional prizes.

Doug Matatall, CEO of TecVana, says Fanshawe’s support in developing and testing the app was instrumental in the formative stages of the project. “The collaborative partnership between TecVana and Fanshawe College has proven to be an invaluable experience in developing meaningful solutions to key social issues such as our struggling rural economy,” he says. The collaboration also resulted in one of the students securing full-time employment with TecVana upon graduation.

Matatall says the Geo Adventuring app has been well received from consumers, quickly landing more than 5,000 fans after its July 2014 commercial launch in Oxford County and generating over 26,000 likes and shares during a subsequent three-week Facebook campaign in December. Other communities have shown interest in getting on board as well. “We will be expanding into international markets very soon,” he says.
In 2011, Centennial Windows & Doors approached Fanshawe for help validating the insulating properties of the company’s vinyl windows. The company’s president, George Warren, explains while it was understood that filling hollow cavities of vinyl frames with insulating foam improves the window’s thermal performance, “a question we always got from our competitors and customers was how did we know that there weren’t spaces left where heat loss could still happen?”

Martin Volkening, an award-winning researcher in Fanshawe’s School of Applied Science and Technology, used an infrared camera to provide an answer backed by scientific evidence. “In the infrared spectrum, the frame showed up completely red. It was indisputable evidence that confirmed the insulating foam was indeed coating the entire frame.”

Pleased with the results, Centennial Windows used the images in their marketing material.

“Now, not only can we show that the cavities have all been filled, but we can demonstrate that the insulation actually keeps the window warmer than the same window without foam insulation,” says Warren.

Fanshawe is currently working on another project with Centennial Windows – a solar shading project evaluating different window treatments for heat, light and sound transmission.

Fanshawe offers a window on validating product quality
As a fourth-year student in Fanshawe’s Biotechnology degree program, Angela Jones pursued cutting-edge research examining the feasibility of the large-scale production of cellulose derived from bacteria, as opposed to the environmentally taxing and labour-intensive process of extracting the organic polymer from plants.

“We’re cutting down trees all the time to feed our need for cellulose. It’s not a sustainable model,” says Jones, who commits to making environmentally conscious decisions in her daily life. “I wanted to look at the potential of using organisms, which secrete pure cellulose without the need for further refining, to handle the process for us.”

Jones conducted most of her study, titled Large Scale Production of Bacterial Cellulose for Multi-Purpose Commercialization, while on a co-op placement at the Stiller Centre for Technology Commercialization located in Western Discovery Park.

Fanshawe’s Dr. Cheryl Ketola, who taught Jones and was her faculty supervisor, recalls being impressed with the scale of the project. “Her set up was generating cellulose on an up-scaled production level,” recalls Ketola.

While cellulose is mainly used to produce paper, Jones’ primary interest was in the potential impact novel biomedical products involving bacteria-generated cellulose could have on the healthcare sector. Cellulose has unique structural and mechanical properties that make it ideal for a wound dressing. Infused with antibiotics, it could effectively treat chronic wounds such as bedsores or diabetic ulcers. It could also have a role in novel approaches treating patients with drug-resistant infections (e.g., MRSA).

Jones received first prize at Fanshawe’s 2014 Student Research and Innovation Day. “It was very exciting to see something you’ve worked so hard on get recognized,” she says.

Jones currently works at Parmalat Canada as a research scientist monitoring product quality and finding efficiencies to improve the production process. “I apply the troubleshooting skills I developed during the biotechnology program on a daily basis to help solve problems in a more efficient manner.”
Fanshawe College has given me the opportunity to jump-start my career, institute a positive and motivated work ethic, while bringing new innovative ideas to future employers.
The most important thing for us is finding ongoing ways to engage our students. Yes, we’re doing some interesting and very valuable research, but what we’re really doing is educating students and providing highly qualified professionals.

Dr. John Makaran, Fanshawe’s Chair of Industrial Research
Fanshawe student develops into Fanshawe leader

Natalia Aguillon certainly made the most of her time studying at Fanshawe. A native of Colombia, Aguillon moved to London in 2008 before enrolling in Fanshawe’s Interactive Media Design and Production program a few years later.

She showed promise early in her studies, demonstrating excellent graphic design and creative skills in developing a mobile application to help her fellow students, giving them an overview of all online services offered by the College as well as a map to guide them around campus. In 2012, she presented the app at Fanshawe’s first annual Student Research and Innovation Day and at Canada 3.0, a gathering of industry leaders, researchers and students to discuss digital media in Canada.

It was an impressive start that brought her to the attention of Rob Haaf, coordinator of Fanshawe’s Interactive Media Design and Production program. Haaf recognized Aguillon’s potential and hired her for what would be the first of two summer placements.

During second year, Aguillon started contributing to applied research projects undertaken by Reactr, a team of faculty, staff and students from Fanshawe’s interactive media cluster working on real-world industry projects.

That’s also when she started developing RezGuide, a suite of web- and mobile-based tools designed to help staff and students at the College’s residences. Intended to be her capstone thesis project when she moved onto the Interactive Media Design program, plans changed when the College posted a full-time job as the Interactive Media Technician and Project Manager for Reactr. “(Aguillon) was the obvious choice for the role,” says Haaf.

Changing her plans to pursue further education on a part-time basis, Aguillon now oversees all active projects within Reactr and works directly with student teams on projects ranging from web portals to smartphone and tablet applications, including RezGuide.

Under Aguillon’s leadership, a team of designers and developers have made rapid progress on the complex project, presenting it at both internal and external conferences including the 2014 World Conference on E-Learning in Corporate, Government, Healthcare and Higher Education held in New Orleans. The Reactr team is expecting to launch a beta version during the upcoming fall semester.

Haaf says Aguillon is vital to Reactr’s ongoing success. “Her creative ideas and talents, her ability to coordinate projects of any size, her desire and willingness to take on new challenges and opportunities have very rapidly made her indispensable to the future growth of the Reactr initiative at Fanshawe.”

Aguillon enjoys her job because she appreciates the incredible value of having students work on real client projects. “I know from my experience of working as a student, and now working with students, that doing research projects with real clients not only enhances our programs and the performance of students, but it also gives them the opportunity to make connections and in many cases get a job in the industry before even graduating from school,” she says.
Fanshawe students prove to be Knighthunter’s white knight

Fanshawe is one of nine colleges in the province to participate in the Voucher for E-Business (VEB) initiative, an in-kind Ontario Centres of Excellence (OCE) funded program which gives companies $2,500 to work with a college to build or enhance their online presence. Since its introduction in October 2013, Fanshawe has helped 39 SMEs stimulate their business by harnessing the power of digital marketing tactics (e.g., building social media profiles, creating display ads, implementing AdWords campaigns, etc.) to boost website traffic and conversions.

Liz Gray, who oversees Fanshawe’s VEB program, explains how her students essentially run their own digital ad agency throughout the fall semester focusing their time on investigating what digital marketing initiatives would generate the highest return on investment for their SME clients. “By using the allotted funds to experiment with a variety of digital marketing approaches, the students essentially create a digital road map for the future, advising their clients where their time and money should be spent in the digital space,” she says. “It’s as real life as a student learning environment can get.”

Mike Sherlock already had a good understanding of digital marketing techniques when he participated in the VEB program during the fall of 2014. The CEO of London-based online human resources provider Knighthunter Inc., Sherlock was blown away by the significant number of unique visitors the students were able to draw to his website. During the VEB program, web traffic hit a record high of over 50,000 per month and revenue spiked by over 20 per cent compared to the same time period in 2013. He eagerly adopted the students’ recommendations.

“The campaign really moved the needle in driving qualified traffic to our website and provided a clear roadmap for the improved use of digital marketing techniques moving forward,” he says. “The VEB program has helped us optimize our digital marketing efforts, something that has become absolutely critical to the success of a small web-based business like Knighthunter.”

Pleased with his experience, Sherlock has continued to work with one of the four student consultants assigned to his account. Benjamin Cartmell, a graduate of Fanshawe’s Business Administration Marketing program who manages traditional and social media marketing activities for London-based Grand River Stone, says the project and his ongoing work with Knighthunter gave him the experience and confidence to open his own consultancy specializing in digital marketing. “The VEB program accelerated my digital marketing skills, and jump-started my career,” he says.
When London’s TRY Recycling Inc. wanted to find new markets within the building industry for the recycled goods in their yard, they approached Fanshawe’s School of Building Technology with an intriguing research request: could crushed mixed glass and asphaltic shingle waste materials be used in concrete?

Faculty members Amneh Kalloush and Dr. Solomon Asantey and three student researchers – Jason King, Lukas Grabowski and Ricardo Mariano – undertook the research and development project in early January 2013. They were later joined by Peter Vander Sterre, Cameron Wilson, Steve MacAulay and some students in the 2014 Construction Materials course who also participated in the research.

With plenty of in-house expertise, a state-of-the-art concrete curing room and industry-leading equipment to evaluate concrete strength, the Fanshawe team was well equipped to conduct this work for TRY Recycling.

The focus of their experimentation was to explore potential uses for granules of recycled solid materials as additives to reduce the amount of aggregates traditionally used in concrete production. Preliminary research revealed that glass had promising results as a substitute for gravel and sand. Their findings encouraged the team to further explore the potential of other aggregate alternatives, such as recycled roofing shingles, in everyday concrete applications. Experiments indicated that concrete made with glass and shingles as substitutes would be suitable for non-structural use such as sidewalks or countertops.

Fanshawe’s research has impressive implications for the recycling and construction industries. Adopting alternate recyclables as concrete aggregates has the potential to reduce dependence on mined aggregates and opens up new markets for recycling plants like TRY Recycling. The research results, applied in the industry, could lead to overall cost savings through elimination of disposal costs and a reduction in energy requirements for manufacturers, not to mention the development of new products for the global marketplace.

The student collaborators presented their research at Fanshawe’s 2013 Student Research and Innovation Day, where they took home the first prize of $1,000.

“This project has provided a real-world, practical learning experience for our students,” said Dr. Asantey, adding that the research findings have already been incorporated into the curriculum taught in the Civil Engineering Technology program. “This aligns well with the College’s newly-adopted strategic goal to integrate applied research and innovation activity into every post-secondary program and engage more faculty and students in innovation.”

The School of Building Technology will have no problem achieving that goal. The initial research with TRY Recycling has already created further opportunities for collaboration with external partners. This past fall, discussions began between Fanshawe and Toronto-based Lafarge Canada Inc. on a second phase of the project investigating the suitability of glass and asphaltic shingle waste as aggregate substitutes in structural concrete. Together with Lafarge’s Innovation & Training Centre, the College will soon begin to validate actual concrete applications in the lab and in the field.
Cultivating well-being:
International collaboration looks at improving the lives of people living with Alzheimer’s disease

A research partnership between Fanshawe College and the Alzheimer Outreach Services (AOS) of McCormick Home - the largest day program of its kind in Ontario - is sowing the seeds to improve the quality of life for those living with Alzheimer’s disease and related dementias (ADRD).

The collaborative study, funded by Fanshawe College, Westminster College Foundation, McCormick Home Foundation and AOS’s governing organization Women’s Christian Association, set out to investigate whether horticultural therapy and other garden-related activities could improve the well-being of AOS clients.

“The message this research sends is that people with Alzheimer’s disease can have a quality life. The diagnosis isn’t the end of the world,” says Magdalena Carter, recently retired Director of Outreach Services at AOS and co-investigator on the project. “It’s our job to help people to experience life to the fullest with the senses and abilities they have.”

Dr. Jodi Hall, a nursing professor and Fanshawe’s lead on the project, says the College “jumped at the chance” to partner with such a valuable community service. “We’re always looking for opportunities to make a difference in our community,” she says. “Finding ways to enhance well-being and lessen the devastating effects that ADRD can have on clients and their families is incredibly important.”

Early in the planning process, Dr. Hall identified a major hurdle; she knew what instrument the team needed to collect the data, but didn’t know how to use it. That’s when she turned to ResearchGate - what she refers to as “the Facebook for researchers” - to put out a call for help. That’s where she connected with Gary Mitchell.

Mitchell, a former care assistant turned nurse and dementia care advisor currently working for an organization that operates approximately 80 care homes throughout Northern Ireland, is an accredited dementia care mapper who has been caring for people with the disease for over 13 years. He immediately responded to Hall’s request, agreeing to mentor the team over bi-weekly Skype sessions on the data collection process and help interpret and present the data.

Drawn to the study because of his strong interest in non-pharmacological approaches to dementia care, Mitchell is confident of the study’s potential to “make a huge contribution to the international literature.”

With Mitchell on board, the study began by assigning 14 AOS clients who had an interest in gardening their own plot, giving them the opportunity to pick what they wanted to grow. Over a 10-week period, the participants were observed while gardening and during traditional staff-directed activities.

Catherine Webber, a recent graduate of Fanshawe’s Recreation and Leisure Services Program who had completed a work placement at McCormick Home but had no prior research experience, collected the data. Dr. Hall says Webber quickly became “a shining star”. Webber found working on the project to be an enriching experience. “It’s incredibly rewarding to be part of a project that will help improve people-centered care for those living with ADRD,” she says.

While it took Webber months to input the binders of data she collected, and it will take Mitchell awhile to interpret and present the data, Carter says the preliminary feedback she’s received is promising. “(Caregivers) have told us that their family members came home excited and talking about the gardening project,” she says. “They wanted to come back the next day so they could do their gardening.”

Muriel Corbiere says her 90-year-old father, Stanley, would routinely talk about his garden at the dinner table. “He absolutely loved his garden,” she says. “He would talk about the bus coming to take him to the...
garden. We didn’t have to prompt him. He would repeat the stories, but he would talk happily about his day.”

Carter says another observable benefit was how participants were able to share their harvest with friends and loved ones. “People living with ADRD have very few opportunities to give to others. They are typically on the receiving end,” she says. “Being able to give the jar of jelly they made to a loved one was such a gift for them.”

Donna Bandrowski says her 84-year-old mother was elated anytime she could bring something home to share with the family. “She would set whatever it was on the table to be sure we could see it before anything was done to it,” says Bandrowski. She says the program had an impact on her mother’s life. “Just being outside and talking to other people about gardening, my mother really enjoyed it,” she says. “I’m hoping that the outreach services can do more of this type of work.”

Carter is already thinking of ways to improve the program for next summer, saying she’s hoping to use portable gardens that can be wheeled inside during the winter so clients can engage in the program year round.

Mitchell is also looking to the future: “I look forward to collaborating with the team in future research and making a contribution, not just to the literature but to people living with dementia.”
2005
Fanshawe establishes its first research office, the Centre for Applied Research, Innovation & University Partnerships.

Fanshawe becomes eligible for Natural Sciences and Engineering Research Council (NSERC) funding following the creation and approval of new research policies. The College’s Research Ethics Board is also established.

Fanshawe participates in its first major international research collaboration, joining Western University, York University and the National University of Rwanda to re-build and increase the capacity of the Central African country’s health care system.

2006
Fanshawe becomes one of 10 founding members of the Colleges Ontario Network for Industry Innovation (CONII), a government-funded province-wide network that grew to include 24 of Ontario’s leading colleges. Now part of the Ontario Centres of Excellence, CONII was designed to help stimulate the economy by working with companies to solve problems, adapt new technologies and develop new or improved products and services.

2007
Fanshawe participates in its first major national research collaboration – with Bow Valley College in Alberta and Canadian Virtual College Consortium in Ottawa – examining essential skills and assistive online learning.

2009
Fanshawe becomes eligible for Social Sciences and Humanities Research Council (SSHRC) funding.

Fanshawe receives its first NSERC grant from the College and Community Innovation Program for the Centre for Sustainable Energy and Environments.

2010
Fanshawe receives its first SSHRC grant as a lead institution.

2012
Fanshawe holds its first annual Research and Innovation Day, an opportunity to bring faculty, staff, students and partners together to showcase ongoing and completed research and social innovation and scholarship projects undertaken over the year.

2014
Fanshawe’s research office is renamed the Centre for Research and Innovation.

The Future
Fanshawe becomes the home for the Canadian Centre for Product Validation (CCPV). Supported by FedDev, the $16.22 million project is the largest research grant the College has received to support innovation for our community and industry partners. The world-class facility will provide unique testing capabilities not found elsewhere in the country, enhancing London’s and Fanshawe’s position as a national leader in innovation and product validation.
## By the Numbers

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<th>Category</th>
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THANK YOU

Over the last 10 years, many sponsors have provided the support and partnership necessary for us to foster a culture where innovation thrives and benefits both our students and community, including:
