2014

2nd Annual Faculty Research & Innovation Day Program

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A MESSAGE FROM THE DEAN

Here at Fanshawe College we have cultivated a commitment to excellence. Our mission is to provide pathways to success, an exceptional learning experience, and a global outlook to meet student and employer needs. It is with the help of exceptional faculty that we are able to achieve our mission through our student body. Events like Faculty Research and Innovation Day (FRID) take the opportunity to showcase the research and innovation being conducted by staff here at Fanshawe College. FRID is an exciting way to exhibit advances being made in a wide variety of fields through college partnerships. Fanshawe's faculty are the foundation on which the success of the college is built.

Dan Douglas
Dean, Centre for Research and Innovation

FRID PRESENTATIONS

The following faculty members will be making a 5 minute presentation on their research project(s), with time for brief questions. Each presentation will occur at the posters with the numbers listed below and during the time period indicated.

10:00 to 10:30 am

1   **UHeat**
Robert Darling
Building Technology

2   **Albert's Generator Hydraulic Test Station**
Robert Darling
Building Technology

3   **Perceptions of Leadership in Early Childhood Educations: Supervisors Speak**
Trisch Pemberton
School of Human Science

4   **OL and F2F Settings**
Syed Goosheh
Lawrence Kinlin School of Business

5   **Woodstock Hydro's Whites Lane microGRID**
Martin Volkening
Applied Science and Technology

9   **The Emerging Adult: Comparison of Health and Lifestyle Behaviours in College and University Student Populations**
Katherine Harrison & Helen Harrison
Health Science and Nursing

10:30 to 11:00am

11   **An iPad-Infused Classroom: Research-Based Outcomes of iPad Use in Two Inclusive, Inner-City Classrooms**
Carmen Hall
School of Human Services

FRID PRESENTATIONS

12 RezGuide: Developing a Mobile Application and Web Portal to Improve Communication and Interaction Between Staff and Residence Students in College Environments
Natalia Aguillon
Applied Research and Media Technician

13 Shifting Attitudes in the Next Generation of Male Lawyers: Will the kids be as important as in the Courtroom?
Shannon Webb
Lawrence Kinlin School of Business

10 The Impact of Clinical Simulation Practice on Students' competence confidence and collaboration in their real practice setting
Helen Harrison and Lori Ranieri
School of Nursing

14 Participants' Self-Identified Learning Outcomes in an Online Preceptor Education Program for Health Professionals and Students
Karen Jenkins
School of Nursing

11:00 to 11:30am   **15 Learning for Lucca: A renaissance of sustainable landscape design**
Eli Paddle
Landscape Design Program

18 Life with Pi: Practical Applications of System on Chip (SOC) technology on Cyber Technology
Mike Costa
Information Technology

19 A Community based, participatory action needs assessment with street-based sex workers
Jodi Hall
School of Nursing

RESEARCH AND INNOVATION ABSTRACTS

1 UHeat

Researcher: Robert W. Darling, Professor
Department: School of Building Technology

Abstract:

Currently, there is no technology that will connect various sustainable energy platforms being investigated. The purpose of our research is to identify and implement 'plug and play' technology that will integrate; energy harvesting, ground source heat pumps, solar thermal and photovoltaic applications.

Our research objective is to build a solid body of knowledge, a foundation on which future research will be based. This type of information collection and analysis is its most powerful when the professions, as a whole, share their finding through publications and educational programs with ever-growing audiences.
This research will move from questions to insight. Developing U-HEAT will grow from a research base to an inspired insight. This research is not introducing the design to a new process, but to new tools that can be used to make the current ones they use to answer design questions more effective and efficient. Both the design process and product(s) are research activities in and of themselves that teach us about our world and ourselves.

UHeat phase one: Measure and record over a mean solar year the amount of thermal energy that is recovered by hydraulic collectors installed in walls of a building structure.

2 Albert's Generator Hydraulic Test Stand

Researcher: Robert W. Darling, Professor
Department: School of Building Technology

Abstract:

Albert's Generator commissioned Fanshawe College to design, construct, test, and certify a testing centre for certifying hydraulic pumps.

The final project consisted of an electric motor, a hydraulic pump, water tanks and several sensors. These components are mounted on a custom made table and controlled via a control panel attached to the table. When the test station is in use the electric motor will drive the pump which draws water from a tank through the hydraulic motor and into another tank. During testing, data is gathered from the sensors, logged and then exported to a computer for analysis.

3 Perceptions of Leadership in Early Childhood Education: Supervisors Speak

Researcher: Trisch Pemberton, Professor
Department: School of Human Services

Abstract:

This qualitative study presents the results of research that focused on the leadership skills and styles of Supervisors of Early Childhood Education Centres in Ontario in the year 2008 by specifically looking for examples of personal and social competencies and leadership styles (Goleman Boyatzis, & McKee, 2002). Seven supervisors were interviewed about how they handled various dilemmas with children, teachers, and parents in the course of the day-to-day operation of a child care centre. The study results showed that these supervisors described their positive styles of leadership and mentioned particular competencies: self-awareness, self-reflection, trust, empathy, and communication. Commonalities emerged from these experiences indicating efforts toward building strong relationships, fostering attitudes of lifelong learning, and collaborative efforts. Many of these leaders modeled their positive attitudes of resiliency and realized the importance of good human relations. The supervisors also recognized the need for leadership training in the field of Early childhood education.

4 Student Engagement in Problem Solving: Preliminary survey results in OL and F2F settings

Researcher: Syed Goosheh, Professor
Department: Lawrence Kinlin School of Business

Abstract:

In many courses that are offered in face-to-face (F2F), purely Online (OL) or Blended (BL) environments students are trained for and required to utilize their analytical skills to solve problems and/or find solutions. Depending on the learning environment students acquire and use these skills independently or through varying degree of interactive support of their instructors and peers. While the literature generally points to the positive impact of such interaction, many OL or BL courses assign students to online analytical quizzes with minimal support. This arrangement often leaves the students with very little guidance or feedback they need for success leaving them with frustration and confusion. In an attempt to gain a better understanding of the impact of active learning on student success in online quizzes, a survey was conducted among the students who took an analytical business course in BL format. The grades and general perception of the usefulness of the online quizzes were compared between a group of students who participated in F2F active problem solving and their control counterparts who chose not to attend f2f classes. The results were very close with those of a previous industrial study and both supported the literature.

5 Woodstock Hydro's Whites Lane microGRID Project

Researcher: Martin Volkening, Research Projects Coordinator
Department: School of Applied Science and Technology

Abstract:

The Whites Lane microGRID project will bring to life these three central objectives (customer control, power-system flexibility and adaptive infrastructure) through the combination of renewable energy, energy storage, electric vehicle, import/export intelligence, net metering and various smart metering applications.

Fanshawe College's Solar Power Optimization algorithm will be the projects import/export intelligence. The power control algorithm represents new technology that provides maximum economic benefits to the owner/resident organization and LDC. Technological advances are also being made in the area to incorporating satellite weather data and forecasting in order to ensure more accurate prediction of potential power that can be generated. Driven by the electricity price and deployed across a large number of homes. This algorithm can be used to alleviate momentary transportation constraints on Ontario's electricity grid, increasing the percentage of renewable energy in the electricity mix, without reducing stability.

6   Hudson Boat Works Testing Stations

Researcher: Martin Volkening, Research Projects Coordinator
Department: School of Applied Science and Technology

Abstract:

The Hudson Boat Works Testing Station is a student capstone project, which combines the efforts of Fanshawe's Electrical and Manufacturing Engineering Technology programs. The project will fabricate an automated testing stand and method. The test will perform torsional test, bending test and a force vs. deflection analysis on Olympic class rowing racing shells. The Hudson Boat works commissioned the project to create a test which is easily repeatable, accurate and improves cycle time.

Students guided by their Professors will encompass several aspects and criteria while developing a standardized test and station. Students will design a Human Machine Interface (HMI) that allows the user to control the equipment and retrieve the data upon completion of a test. The stand must be versatile, by having the ability to move horizontally along a track to various positions, accommodating several boat shells.

7 Fanshawe College's Bicycle Generation Stand

Researcher: Martin Volkening, Research Projects Coordinator
Department: School of Applied Science and Technology

Abstract:

We can all relate to the expression "work smart not hard."bThis also can be said for your electronics. Power is defined by the amount of energy or work consumed over period of time. Fanshawe College's Bicycle Generation Stand is an eye opening project that demonstrates of amount of physical exertion to power electrical appliances. The project was constructed by recent Fanshawe graduates for the City of London, to display amount of energy required to power electronic equipment.

8 Fanshawe College's Solar Shading Project

Researcher: Martin Volkening, Research Projects Coordinator
Department: School of Applied Science and Technology

Abstract:

A window system that is installed within an exterior building envelope is required to perform a number of different tasks, and usually all at the same time. In particular, the window is to provide a clear view to the exterior, resist heat transfer, allow for a high percentage of natural light to enter into the building and minimize solar heat gain during the summer and allow for solar heat gain in the winter. The challenge with most solar shading solutions is that they are 'one size fits all' where they are successful in some of the required tasks, and not so successful in others. To complicate the issue further, some of the tasks change depending on the time of the year. The industry partner Centennial Window would like to develop a solar shading methodology that maximizes the windows performance in reducing solar heat gain in the summer months and allowing for solar heat gain in the winter months, and at the same time, not compromising the performance of the window in its' other performance criteria. The data will be collected, summarized and analyzed by Fanshawe technology students, faculty and the industry partner.

9 The Emerging Adult: Comparison of Health and Lifestyle Behaviors In College and University Student Populations

Researchers: Helen Harrison, Professor, Katherine Harrison, Professor, Richi Jurakhan, Kerry Ritchie

Department: School of Health Sciences and Nursing

Abstract:

Introduction: Emerging adulthood is a newly defined stage of human development that has been identified as the transition period from adolescence to adulthood. A modified FANTASTIC Lifestyle Questionnaire was used to investigate the health behaviours of the Emerging Adult (EA) population.

Methods: University of Guelph taking an introductory Biology course completed the self-reported mFANTASTIC questionnaire online as part of their course. Fanshawe students completed the survey in class on a Scantron form. 239 college students completed the survey and consented to be in the study. 1010 university students (37%) gave informed consent to have their data used for research purposes.

Preliminary Results: Eighty percent and 98% of college and university students respectively are between the ages of 18-26. Significant differences ($p < 0.01$) between college and university students indicate the college subgroup of the EA population reported a decreased overall health score. College students responded to more frequent participation in moderate physical activity (37%) than university students (26%). College students respond to consuming a balanced diet significantly less (38%) often than university students (50%). College students reported participation in risky behaviors to a higher degree than university students. College students report feeling tense or worried significantly more than university students along with being less able to cope with stress (15% difference).

Summary and Future Directions: Significant differences between these college and university students suggest the college subgroup of the EA population has a lower overall health score. College students may be more at risk for obesity related diseases and risky behaviors. Future studies could break down age in both university and college populations to determine if younger EA populations in both groups exhibit similar trends.

10 The Impact of Clinical Simulation Practice on Students' competence, confidence & collaboration in their real practice setting

Researchers: Hossein Khalili, BIEN & International Projects & Partnerships Coordinator, Helen Harrison, Professor, Lorie Katsadema, Mary Anne Krahn, Professor/Coordinator, Sandra DeLuca, Chair

Department: School of Health Sciences and Nursing

Abstract:

Background: There is an increasing pressure from regulatory bodies to ensure the preparedness of future nurses in their transition into the demanding ever-changing workforce. At the same time, there is the difficulty of finding enough quality clinical placement sites for the growing population of nursing students. All this has resulted in the consideration of simulation as a substitute for traditional "real" clinical placement. However, there is a paucity of evidence supporting transferability of high-fidelity simulation learning 'client care' beyond the simulation labs.

Purpose: The purpose of this study was to assess the impact of clinical simulation practice (CSP) on the competence, confidence, and collaborative practice of Bachelor of Science Nursing (BScN) and Practical Nursing (PN) students in their future clinical practice with actual patients.

Methods: A mixed method approach with a time series quasi-experimental design was employed. Using a convenience sampling approach, data were collected from 96 students in the BScN (n=55) and PN (n=41) programs utilizing three scales: self-efficacy scale, self-assessment competency scale, and dual identity scale. Instrument data were analyzed using descriptive and inferential statistics including t test and MNOVA. Qualitative data were analyzed using thematic content analysis.

Findings: The findings supports the impact of the CPS as a supplement to the clinical placement in helping students significantly improve their competence, confidence and collaboration in their real practice by bridging the gap between theory and practice in nursing education.

Conclusion: The findings of this study providing some evidence to support the blended approach of balancing simulation and actual "real" clinical experiences that could have a great impact on preparing the new generation of practitioners to effectively practice and provide care to the geriatric population.

11

iPad-Infused Classroom: Research-Based Outcomes of iPad Use in Two Inclusive, Inner-City Classrooms

Researcher: Carmen Hall, Professor/Coordinator
Department: School of Human Services

Abstract:

The use of iPads in inclusive classrooms for young children is increasing becoming a pedagogical reality. An iPad-Infused Classroom describes the reality of iPad use in two inner-city classrooms including student perceptions, educator satisfaction, and the use of an electronic scheduler to support everyday transitions for a student with Autism Spectrum Disorder.

12

RezGuide: Developing a Mobile Application and Web Portal to Improve Communication and Interaction Between Staff and Residence Students in College Environments

Researcher: Natalia Aguillon, Tech Support - Media Program
Department: Centre for Digital and Performing Arts

Abstract:

Fanshawe RezGuide is a Web portal and mobile application designed to address some of the critical issues that Fanshawe students in Residence experience at the beginning of each academic year. It will be designed to improve the interaction between residence staff and students, in turn improving the student experience during their time at residence. Users will create customized profiles in the Web portal, and have a variety of tools available: The application will offer interactive, animated building/room direction guides to help students get to their correct classes on time, as well as locate other important College services.

The app will display their class schedule and tie it to notifications and the interactive room direction guide. It will also have notifications and alerts that will announce them about upcoming classes and other important events/dates. The available features will help students be more aware of their new scheduling and academic responsibilities, and will offer communication and notification options consistent with their preferred communication channels (e.g., SMS).

It is anticipated that the availability of a set of Web/Mobile tools will over time have a significant and measurable impact on student orientation, overall satisfaction with their College experience and retention in College programs.

13

Shifting Attitudes in the Next Generation of Male Lawyers: Will the kids be as important as the courtroom?

Researcher: Shannon Webb, Professor
Department: Lawrence Kinlin School of Business

Abstract:

We adopted role salience measures to assess whether commitments to occupational, parental, and marital roles differed between male and female law students. The results indicated that male law students were slightly more committed to occupational roles. We also found that male and female law students were equally committed to marital and childcare roles. Surprisingly, male and female law students reported equal self-efficacy to manage work-life conflict. Therefore, the study suggests that the decision to opt out of legal careers likely occurs more at the workplace level and is less attributed to pre-career commitment or self-efficacy levels.

14 Participants' Self-Identified Learning Outcomes in an Online Preceptor Education Program for Health Professionals and Students

Researcher: Karen Jenkins, Professor
Department: School of Nursing

Abstract:

The Preceptor Education Program (www.preceptor.ca) was developed in 2007 as a massive, open, on-line course (MOOC). It is a free and self-directed educational program for students and preceptors who serve as educators in clinical learning. The program offers learning that prepares both the student and preceptor for high quality educational experiences in hospital or community settings. Following the completion of each module, participants were asked to write a short reflective note regarding what they learned and how this would influence their future practice. In 2011, reflections on learning that had been submitted for the various modules were downloaded. In total 3502 reflections on learning were recorded by participants and collected by the research team. This data represents participants' self-identified learning through the program. Six learning outcomes were identified which included: becoming self-aware, fostering communication, valuing relationships, developing new insights, applying new learning to practice, optimizing practice education and experiencing affirmation. Users of the online program tell a story of transformation and that preparation of both student and preceptor for practice education is enhanced. The Preceptor Education program provides an important e-learning option for health disciplines in academic and practice settings who collaborate in the preparation of students as future health professionals.

15 Learning from Lucca: a renaissance of sustainable landscape design

Researcher: Eli Paddle, BFA, MLA, PhD Candidate, Coordinator/Professor
Department: School of Design, Integrated Land Planning Technologies

Abstract:

The proposed poster presentation will provide a look at the preliminary translation and accompanying pedagogical activity that was conducted as part of the Landscape Design semester abroad program,in response to, a little known Italian Renaissance manuscript, the "Treatise Saminiati." This text was written as a guide to the construction of the Tuscan city of Lucca's country villas, of which there were over 400 dotting the foothills at the base of the Apuan Mountains outside the small walled city. The term "villa," as used in this abstract refers to the country side villas (Villa Rustica) which were agricultural complexes built to include; elaborate houses and pleasure gardens for the wealthy land owners, agricultural lands and associated buildings, as well as dwellings for farm laborers built in the late Renaissance and early Baroque periods. Unlike other, more well known authors from other Italian cities, such as Alberti in Florence or Palladio in Vincenza, the author of the Treatise Saminiati, Giovani di Vincenzo Saminiati, took a more holistic approach, that unlike his counterparts, centered around the function of the villa; specifically agriculture, as opposed to architecture, which speaks very much to the identity of region and the Lucchese people. The sole handwritten copy of the treatise is housed in the archives of Lucca with limited access for study and, until now, the manuscript has neither been transcribed from the Renaissance Italian vernacular language that it is written in to contemporary Italian language, nor has it been translated into English, which leaves the contents of the text as a tantalizing mystery. While it is thought that Saminiati's treatise was of great influence upon the design of many villas, without translating the text, it is not known to what extent he was prescriptive in his writing; however preliminary translation work seems to indicate that the author was very detailed in his writings. Though many have been altered significantly over the centuries, the remaining villas, in many cases, have retained features from their original design that may be studied in relation to the contents of the treatise. As part of a recent study abroad program, Landscape Design students from Fanshawe College were given an opportunity to study the several translated chapters, visit the archive to see the document and speak to the translator, view related historical documents, receive a guided tour of the villa, study the historical plan of the garden as well as current aerial photography and then measure the function of several devices based upon their microclimatic function to understand the importance and benefit of the holistic design and planning approach proposed in the treatise.

16 Community Living Elgin Mobile Design Workshop

Researcher: Eli Paddle, BFA, MLA, PhD Candidate, Coordinator/Professor
Department: School of Design, Integrated Land Planning Technologies

Abstract:

The purpose of this research project was to create, test, evaluate and document an urban planning methodology called a Mobile Design Workshop with a local community group, and then take what was learned from that experience and implement the refined methodology in another real-life scenario. The test of the Mobile Design Workshop took place in the context of preparing three design alternatives for a new mixed-use community facility development for Community Living Elgin, a not-for-profit organization that promotes assisted living alternative to those with physical or developmental challenges in St. Thomas, Ontario. At this workshop sixteen students, six faculty, and twelve Community Living Elgin supporters and neighbours worked collaboratively to identify and visualize the design issues, derive alternatives and create development concepts for the property currently owned by Community Living Elgin at 21 Kains Street in St. Thomas. The methodology was evaluated from the Community Living Elgin experience, honed, and then used in support of the land development question in Athabasca, Alberta. In Alberta, two faculty members from Fanshawe College guided the planning and engineering staff of Athabasca, with some members of the general public through a unique, multi-disciplinary, interactive, and hands-on approach to resolve the site design challenges. The Mobile Design Workshop focused on taking a large lot of vacant land from its present underused state to the conceptual design all within one day. Faculty and students from various Fanshawe College programs (GIS & Urban Planning, Landscape Design, Integrated Land Planning Technologies, and Architectural Technologies), and volunteers from Community Living Elgin were critical in defining a design methodology that can bridge the gap between design experts and community user groups.

17 Equal Opportunity Streets: The distribution of Public Trees as a Restorative Element in School Environments

Researcher: Eli Paddle, BFA, MLA, PhD Candidate, Coordinator/Professor
Department: School of Design, Integrated Land Planning Technologies

Abstract:

Given the previously-established social, economic, and healthful benefits in local environments, we argue that the provision of publicly-funded street trees in a city should be considered as an 'environmental justice' issue. Accordingly, the study examines the distribution of street trees within the established walk to school zones around elementary schools in four cities in Ontario, Canada to assess potential levels of 'exposure' to these positive natural features among school-age children of different socio-demographic backgrounds. A geographic information system incorporating detailed geodatabases of pubic trees and elementary schools was used to analyze the spatial distribution of trees in relation to the socio-economic characteristics of neighborhood walking zones around every elementary school. Our findings indicate that the spatial distribution of street trees in the walkzones surrounding the schools in the four Southwestern Ontario cities studied closely mirrors the pattern of socio-economic distress in those same cites. A survey to assess one of the healthful benefits of street trees, attention restoration, as influenced by street tree density, conducted to further understand the importance of this environmental exposure and the implications of the inequitable distribution apparent in the case study cities explored in the GIS analysis will also be presented. The findings point to a greater need for municipal planners, policymakers and a community-based organizations to carefully consider the socioeconomic characteristics of neighborhoods in order to ensure that future tree planting efforts are conducted in an equitable manner and targeted to the areas with the greatest need for the associated benefits they provide.

18 Life with Pi: Practical Application of System on Chip (SOC) technology in Cyber Security

Researcher: Michael Costa, Professor
Department: School of Information Technology

Abstract:

In April, 1995, the National Science Foundation Network (NSFNET) was decommissioned and the Internet became one of the most disruptive technologies to ever appear on the commercial scene forcing many corporations and educational institutions to rethink their industry models. The expectation that the transfer of this technology from a select group of researchers sponsored by the US National Science Foundation to the greater educational and research communities would create new and innovative communication technologies, expand on existing commercial markets and possibly generating new ones cannot be argued. One such technology which has emerged as a result of the convergence of several other technologies and which has its research roots firmly tied to this globally networked community is the Raspberry Pi®. Initially intended to be a low-cost platform to facilitate the education of computer science, it has transformed far from the original targets for the device to objective use into areas of the digital humanities never before envisioned for this type of technology. This research looks at a practical implementation of this innovation in education by investigating its ability to perform in a clustered environment and discusses two possible applications of it in the world of cyber security.

19 A Community based, participatory action needs assessment with street-based sex workers

Researcher: Jodi Hall, Professor
Department: School of Nursing

Abstract:

While research has been conducted on sex workers living within larger urban settings, little research has documented the needs of workers within smaller urban settings. The purpose of this research is to develop and conduct a needs assessment of street-based sex workers who access a drop-in centre for sex workers and women in crisis in London, Ontario called Safespace. This community based participatory research study (CBPR) represents a partnership between university and college-based researchers, SafeSpace volunteers, and sex workers, and has as its objective to identify the health and safety needs of street-based sex workers in London, Ontario to inform health education, service delivery, and health policy.

The adoption of a CBPR approach recognizes that sex workers have unique insight into the sex work occupation and have the capacity to identify problems that affect their working conditions, and to generate solutions for change pertinent to the health and well-being of themselves and the sex worker community. Within CBPR, partners contribute their expertise and share responsibilities and ownership to increase understanding of a given phenomenon, and incorporate the knowledge gained with action to enhance the health and well-being of community members.

20   How the International Student Experience Impacts Learner Success

Researcher: Candace Miller, Program Manager
Department: Lawrence Kinlin School of Business

Abstract:

In order to identify barriers that impact international learner success, this study examined the physical, social, emotional and intellectual experience of six students from different countries around the world attending a large southwestern Ontario college. The results of the qualitative study suggested that although there was evidence of issues with physical transition and academic challenges for international students, the predominant factor impacting student success was directly related to international students' lack of social and emotional connectedness to the new world around them. As a result, when the emotional and social encounters were perceived more negatively, the participants' responses about the overall experience tended to be more negative as well.

21 In search of nature in one urban kindergarten classroom: Engage to learn

Researcher: Dr. Farveh Ghafouri, Professor
Department: School of Human Services

Abstract:

Health and educational experts warn that today's children have few opportunities for direct contact with nature. Children's disconnection with nature, or "nature deficit disorder," has serious human costs. Considering the role and value of direct connection with nature and the many complex ways that children may experience nature in an urban setting, this qualitative grounded theory research investigates when, how, and what free and unstructured time in nature can contribute to children's learning experiences in an urban kindergarten classroom. The findings suggest that the process of engagement with nature requires time, space, mind, and body in an uncertain context of exploring, discovering, inventing, and risk-taking. The study demonstrates the teacher's role in manipulating and transforming the spaces - physical, social, personal, and emotional - and the time as well as the children's role in studying, representing, transforming, and interpreting nature. This poster presentation invites the audience to consider the place of "nature" beyond its role as a vehicle for traditional adult-prescribed skill-oriented learning and view nature beyond a packaged entity.

22 Solar Powered Utility Vehicle

Researcher: Ke Liu, Professor
Department: School of Applied Science and Technology

Abstract:

This project investigates the application of solar energy to power electrical utility vehicles, such as golf carts, airport ground vehicles, etc. Based on the commercial available vehicles and photovoltaic (PV) panels, a solar charge controller has been developed to implement the Maximum Power Tracking (MPT) of the sunshine. With a solar simulator and testing instrumentation, verification tests are being conducted to present the extension of the battery full-charge usage during a regular day.

23 Disclosure Decision-Making at Work

Researcher: Kate Toth, Professor, Human Resources
Department: Lawrence Kinlin School of Business

Abstract:

Fear of stigma may lead employees to choose not to disclose a mental disorder in the workplace, thereby limiting help-seeking through workplace accommodation. Various factors are considered in making decisions related to disclosure of concealable stigmatizing attributes, yet limited research explores such decision-making in the context of mental disorder and work. Interviews were conducted with 13 employees of a post-secondary educational institution. Data were analyzed according to grounded theory methods through processes of open, selective, and theoretical coding. Findings indicated that employees begin from a default position of nondisclosure that is attributable to fear of being stigmatized in the workplace. In order to move from the default position, employees need a reason to disclose. The decision-making process itself is a risk-benefit analysis, during which employees weigh risks and benefits. Understanding how employees make decisions about disclosure in the workplace informs organizational policies, practices, and programs to enhance inclusivity. The findings suggest possible interventions in education, policy, and culture for reducing stigma of mental disorders in the workplace. As organizations become more inclusive and supportive of employees, we can expect job tenure to increase, leading to enhanced recovery for individuals, and increased productivity and reduced disability claims costs for organizations.

24 Using beneficial bacteria to grow potatoes with less fertilizer

Researcher: Amy Turnbull, Professor
Department: School of Applied Science & Technology

Abstract:

The global population is expected to be 9 billion people by 2050. To feed this population, agricultural outputs must increase by 100-110%. Nitrogen and phosphorus are nutrients required in the greatest amounts by plants. These are applied to soils to increase yield. Presently, these nutrients are acquired by unsustainable means: nitrogen fertilizer is made in a process that consumes fossil fuels at a rate of 1.1% of global annual energy use, and global reserves mined phosphorus indicate that phosphorus will be depleted in 100 years.

Roots contain 100,000 bacterial cells per gram. These bacteria can provide nitrogen, obtained from the atmosphere, to the plant, decreasing the need for fertilizer inputs. A limitation preventing the widespread use of bacteria in agriculture is establishing beneficial bacteria on plants grown in field soil. This study provides evidence that the first bacteria introduced on roots will remain with the plant, even when it is transplanted into different soil. We applied these findings by establishing beneficial nitrogen-fixing bacteria on potato plants prior to transplanting the plants in field soil. These plants exhibited increased growth over the untreated control. The research has the potential to increase the sustainability of agriculture.

25 Cigarette Smoking Behaviour and Attitudes Among Canadian College Students

Researchers: Lyndsay Fitzgeorge, Professor, and Mia Tritter
Department: School of Health Sciences

Abstract:

Smoking rates of young adults attending Canadian colleges are exceedingly high, greater than both the general population and university students. Unfortunately, little attention has been devoted to cigarette smoking in college students attending a trade/technical school. Being an at-risk population, this is an area of study that needs to be examined. Given the harmful effects of smoking, in addition to the heightened health risks associated with workplace toxins, this population can no longer be ignored. Therefore, the purpose of our proposed research is to explore the smoking behaviour and attitudes of students attending Fanshawe College. Those interested in being part of the study will complete a questionnaire made up of items from validated questionnaires; data collection at Fanshawe College is set to begin in May 2014. The findings will be shared with students and employees of Fanshawe College and serve as a foundation for future research projects.

26 Credibility Beliefs of Exercise Aids Women Attempting to Quit Smoking

Researchers: Lyndsay Fitzgeorge, Professor, Mia Tritter, Therese Haper, and Harry Prapavessis

Department: School of Health Sciences

Abstract:

It is known that patients' beliefs regarding the credibility of psychotherapy are important predictors of treatment outcome for various health ailments. Despite the array of smoking cessation aids, minimal research has been dedicated to examining smokers' beliefs about the credibility of these treatments. The objectives of this study were (1) to examine successful quitters' beliefs regarding the credibility of Nicotine Replacement Therapy (NRT) and exercise as quit-smoking aids and (2) to assess whether credibility beliefs predict final smoking status outcome. Participants consisted of a subsample of female smokers (N = 146) in a 14-week exercise and NRT cessation program (Getting Physical on Cigarettes, NCT01305447). Credibility beliefs were collected at baseline, week five of regular exercise (one week after starting the 21 mg patch) and week 14 (end of the program). Among those who successfully quit smoking, credibility scores for both exercise and NRT increased over time (no Group x Time interaction). Furthermore, emergent exercise credibility beliefs (week five) predicted week 14 smoking status. Overall, these findings suggest that exercise is perceived to be as credible as NRT among women who have successfully quit smoking in an exercise aided smoking cessation program. Furthermore, exercise credibility beliefs predict smoking cessation status; hence, it is important for health care practitioners to emphasize the credibility of exercise to clients when it is prescribed as a quit-smoking therapy.

27 Dose Optimization in direct digital radiography: A study of practitioner's assessments of image quality and perceptions

Researchers: Liz Lorusso, Coordinator, Liz Fitzgeorge, Professor, and Jenna Lorusso

Department: School of Health Sciences

Abstract:

The purposes of this research are to: (a) investigate practitioners' image quality assessments of direct digital radiographic images acquired with different levels of kVp and mAs; and (b) examine practitioners' perceptions regarding the practice of acquiring direct digital radiographic images with increased kVp and decreased mAs in an effort to optimize patient dose. To investigate the first purpose, participants in this study will be asked to examine direct digital radiographic images of four different body parts (three images per body part) acquired with different levels of kVp and mAs, and rate (using a five point scale) each image in regards to their: (a) aesthetic quality; (b) overall diagnostic quality; and (c) visualization of anatomical structures. Following this, they will be asked to rank the three images of each body part in order from best to worst overall quality. To investigate the second purpose, participants will be asked to complete a questionnaire regarding your perceptions of the practice of acquiring digital radiographic images with increased kVp and decreased mAs in an effort to optimize patient dose. This poster will present the results of a smaller pilot research study as well as the preliminary results of a larger ongoing research study.

28 Gender Backwash on EFL Teachers' and Students' Appraisals

Researcher: Dr. Gholamreza (Sam) Samigorganroodi, Professor
Department: School of Language and Liberal Studies

Abstract:

The present study delves deep into EFL teachers' and students' beliefs and cognition at the tertiary levels on the non/existence of gender partiality towards the opposite/same sex teachers and students. Conducting a survey method, two samples were singled out: 1) students (N=219); and 2) teachers (N= 30) who consented to fill in two separate piloted questionnaires. It was explored that both the teachers and the students believed in the existence of the gender partiality towards the opposite sex in EFL contexts at tertiary levels. The results of the study also evinced that most of the teachers believed in 'instinct tendency to opposite sex' as the reason behind the gender partiality on teachers' behavior towards the opposite-sex students while students believed that the reason for teachers' gender partiality toward their opposite-sex students is the students' appearance and behavior. The study demonstrated that 62.1 percent of the students consented that students have tendencies toward their opposite-sex teachers. It was also ascertained that teachers' cognition affects the way they behaved in their assessments and it has impacts on the way teachers make instructional decisions.

29 Integrating Human Patient Simulation as an Innovative Approach to MRI Education

Researcher: Carol Butler, Coordinator
Department: School of Nursing

Abstract:

Evolution of technology such as MRI simulators and human patient simulation mannequins and the availability of standardized patients has provided educators with the tools needed to develop competency attainment for students in an MRI program. Repeated and reliable performance consistent with the definition of entry level proficiency is a criterion for student success. In order to enhance competency attainment, a simulated MRI environment was created using an MRI simulator, mid fidelity mannequins and standardized patients. Students were able to apply concepts learned by working as technologists in a safe MRI environment prior to actual clinical practice. Scenarios were developed for students to apply competencies such as screening, transfer techniques, infection control, responding to emergency situations and interprofessional collaboration. Debriefing created discussion around the successes and inevitable mistakes that could occur in an MRI setting. Participation in simulation scenarios provided the student with opportunities to communicate, make decisions related to patient safety, develop an increased confidence level and perform the competencies consistent with the situation at hand. Scenario examples, creation of the simulation environment, student evaluation, successes and lessons learned will be presented.

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