



 **2012** Faculty Development Programs **2013**



NORTHERN KENTUCKY UNIVERSITY

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INTRODUCTION

This publication summarizes the activities and work of Northern Kentucky University faculty members who were supported by the university's faculty development programs during the academic year of 2012-13 and the summer of 2013. Three faculty development programs are currently in place at Northern: sabbatical leaves, summer fellowships, and faculty project grants.

Sabbatical Leaves are granted by the university to promote the professional growth and effectiveness of the faculty. Sabbatical leaves are granted to enable recipients, based on merit, to devote additional time to scholarly activity and research, advanced study, or artistic performance – all in pursuit of academic objectives. Tenured, full-time faculty and department chairs are eligible to apply for sabbatical leave. In 2012-13, 17 faculty members were approved for sabbatical leave.

Summer Fellowships provide funds to support professional development during the summer months. Examples of types of activities that may be applicable include: improving teaching skills; research; scholarly writing; creative or artistic projects; preliminary studies and literature searches; and attending seminars or courses related to one's field or professional work. Full-time tenure-track or tenured faculty may apply for a faculty summer fellowship. Each of the 15 faculty members awarded a fellowship for summer 2013 received an award of \$6,000, for a total of \$90,000.

Project Grants provide funds to pay expenses, purchase equipment, and to cover other financial needs for sabbatical leaves, faculty summer fellowships, and for other instructional, scholarly, and creative activities where financial support is not available through department budgets. Full-time tenure-track or tenured faculty may apply for a faculty project grant not to exceed \$6,000. In 2012-13, 13 faculty members received a project grant, for a total of \$56,000.

The faculty development programs offer an opportunity for faculty members to grow professionally, to keep abreast of developments in their disciplines, and to infuse these experiences into the classroom to enhance student learning. As illustrated in this publication, Northern's faculty development programs have enabled our faculty members to undertake important work and to accomplish great things!

FACULTY DEVELOPMENT PROGRAMS AT NORTHERN KENTUCKY UNIVERSITY

**SUMMER
FELLOWSHIP
2013**

Matthew Albritton
*Department of
Visual Arts*

This House to the White House: Presidential Birthplace

Funding made available with the summer fellowship facilitated the researching, visiting, and photographing of the birthplaces of 12 presidents. This is the continuation of a project to document the birthplaces of all the US presidents in photographs and writing. While I photograph the sites,



Discussing the project with Frank & Eleanor

my collaborator, Dr. Andrew Leiter of Lycoming University is completing the writing. The summer's travels included a meeting with Dr. Leiter to continue discussions about our collaborations on the project. In two excursions, I traveled to the Boston area and made a trip through Vermont, New York, and Pennsylvania. I was able to visit and photograph the following birth sites: John Adams, John Quincy Adams, George H. W. Bush, George W. Bush, JFK, FDR, Coolidge, Pierce, Arthur, Roosevelt, Van Buren, and Fillmore. This leaves only 7 more sites to finish the project and begin putting the book together with Dr. Leiter.

The interdisciplinary approach provides multifaceted entry points into American history and culture. In addition to a personal response to place and history through my photographs, the project highlights the intersections of a variety of subjects such as specific historical locales and how they change over time, cultural mythologies of the American presidencies, issues of historical preservation, and 280 years of cultural transition from Colonial America (and George Washington's birth in 1732) to the present.

**SABBATICAL
LEAVE
2012-13**

**PROJECT
GRANT
2012-13**



Chris Christensen
*Department of
Mathematics and
Statistics*

The Relationship Between Mathematics and Cryptology

In the 1920s and 1930s, the US Navy, based upon the experience of World War I, began to develop the means to do signals intelligence. The Navy's expected next confrontation was in the Pacific, and the expected next enemy was the Japanese. The Navy began to establish intercept stations in the Pacific and to train Navy personnel with the necessary codebreaking skills. Although the number of trained codebreakers in the Navy might have been adequate for peacetime, the Navy realized that in the event of war, additional codebreakers would immediately be needed.

So, after war broke out in Europe, the Navy began to develop a reserve of trained codebreakers. The Navy began to search for mathematicians on college campuses who could be recruited as codebreakers in case of war. "Friends of the Navy" suggested names of mathematicians who were potential codebreakers, and the Navy contacted these mathematicians and invited them to participate in a correspondence course in elementary cryptanalysis (codebreaking). After the attack on Pearl Harbor the mathematicians who had successfully completed the course were commissioned and served in OP-20-GM, the research section of Naval Communications.

Like the military strategy, the codebreaking strategy was "Germany first." To the US Navy codebreakers that meant an attack on the German cipher machine Enigma was their first priority. In the 1930s Polish mathematicians had broken Enigma, but the Germans changed the way Enigma was used. British codebreakers next broke Enigma, but a change in February 1942 blacked them out, and the Allies were unable to gather signals intelligence to guide the Atlantic convoys around the U-boat wolf packs. In February 1942, the Battle of the Atlantic was being won by Germany.

The Battle of the Atlantic was being fought mostly under the leadership of the British, but the



The photo is from the National Archives in College Park, MD "Naval Security Station Cryptanalytic Machine Installation, 1945." The codebreaking machine operating room was in the basement of Building 4 of the Naval Communications Annex which was located on Nebraska Avenue in Washington, DC. The Naval Communications Annex site is now the site for the Department of Homeland Security.

Pacific war was being fought mostly under the leadership of the US Navy. The primary Japanese naval cipher JN-25 became a focus of the Navy codebreakers. After the attack on Pearl Harbor JN-25 traffic dramatically increased, and US Navy codebreakers were able to gather intelligence from JN-25 messages that led first to a stalemate in the Battle of the Coral Sea and then to a US victory in the Battle of Midway.

In the fall of 1943, US and British successes against Enigma allowed OP-20-GM to direct more attention to JN-25. OP-20-GM codebreakers looked for weaknesses in JN-25 and designed machines to attack those weaknesses. These machines, like the machines to attack Enigma, were engineered and produced at the Naval Computing Machine Laboratory, which was located at National Cash Register (NCR) in Dayton, Ohio. Among other reasons, NCR was chosen because Joe Desch and other NCR engineers had experience developing electronic counting devices.

My focus during this sabbatical leave and project grant was an exploration of the machines designed by OP-20-GM and engineered and built by NCR at Dayton to attack JN-25. Those machines include a “false adding machine” called Fruit by the British, a series of machines called Copperheads, and a machine called Mamba. These machines served as the codebreaking computers of their day.

Response to Event Sponsorship Announcements: Temporal Distance and Construal Level Effects

As a result of the faculty summer fellowship award, I collaborated with international scholars to complete a series of studies that examined individuals’ response to corporate sponsorship of community events. Given increasingly distressed municipal budgets, event organizers across the globe frequently turn to corporate sponsorship as an alternate means of funding activities. Understanding the receptiveness of the public to announcements of such sponsorship is important for the long term viability of the corporate funding model for events. Based on Construal Level Theory, the experiments investigated how individuals’ default mode of thinking, the information contained in sponsorship announcements and the timing of the announcement influenced responses to the sponsoring company and sponsored event. In general, the results suggest a more favorable response to concrete (versus abstract) information, especially for individuals prone to abstract thinking or for events in the distant future. These findings support articulation and public promotion of the detailed relationship between a corporate sponsor and sponsored event—both well in advance and leading up to such an event. In sponsorship situations where detailed information is not feasible for public announcement, abstract content elicits the most positive response when the sponsored event is near in time. The research method and results of each study were presented separately at the Academy of Marketing Science conference in Monterrey, California and the World Marketing Congress in Melbourne, Australia.

SUMMER FELLOWSHIP 2013



Joe Cobbs
Department of
Marketing, Economics
and Sports Business

Using Primary Resources to Develop Students’ Understanding of the Economic Impact of Slavery in Kentucky

Understanding and investigating local history is a powerful teaching tool. To research local history causes us to reflect about American history in ways that don’t happen sitting in a traditional on-campus class. It can foster debate; it can help teachers/professors re-tell history; and it can provide new insights into the importance and significance of history. Teaching history from a local historical perspective can encourage our students to re-consider United States history. Using primary sources in a local context enriches the students’ learning. “They provide students with a sense of reality and complexity of the past and present” (Schrum, 2001, 329).



Mason County Court House in Maysville, Kentucky holds volumes of wills and deeds that are bound but not archived. I was fortunate to receive a summer fellowship to research these volumes and I photographed wills and deeds to document this time period of history. These primary documents held in deed books contain the names of enslaved people and slave holders which are an untapped resource for teaching this era of American history.

The second part of my project happens Fall semester (2013) in my Social Studies Methods class. Students will use these photos to create curriculum that is rich with the stories of people in history that have been marginalized and left out of traditional textbooks. Additionally, a student created website will be used to post these unit plans that the students will showcase at the Celebration of Student Research and Creativity.

SUMMER FELLOWSHIP 2013

Denise Dallmer
Department of
Teacher Education

SABBATICAL LEAVE 2012-13

PROJECT GRANT 2012-13

Maureen Doyle
Department of
Computer Science

Security in Applications Developed with Agile Software Development Process

My sabbatical year focused on researching, writing papers and improving my teaching in Software Engineering. Research focused on Agile Software Processes, with Dr. Laurie Williams at NC State, and traceability, with Dr. Jane Hayes at UK. Both projects build on my current software security research, and extend the use of open source web application and mobile application projects data collected at NKU.

I also subcontracted with Raytheon/BBN Technologies exploring data visualization using R and constraint programming. The data visualization work was integrated into Raytheon/BBN's product, AMP. The work on constraint programming was pure research and was incorporated into a proposal for future funding.

I also continued working and publishing on two NSF grants: FORCE and CPATH. The work on NKU's NSF FORCE grant included interviewing and selecting an external evaluator and being part of the team who prepared and presented at our 3rd year review. My work for the CPATH grant included submission and presentation of a paper on Critical Thinking versus Computational Thinking.

I began serving as the Associate Dean of Informatics on July 15, 2013 ending my sabbatical about one month early. Project funds were used to pay for travel to and from University of Kentucky and North Carolina State University.



SABBATICAL LEAVE 2012-13

Donelle Dreese
Department of
English

Where the Strawberries Grow: The Life and Literature of Elizabeth Madox Roberts



For my sabbatical, I researched and drafted a book proposal and chapter for a book-length scholarly work, tentatively titled *Where the Strawberries Grow: The Life and Literature of Elizabeth Madox Roberts*. This book will provide a much-needed biography of Kentucky nature writer Elizabeth Madox Roberts, and explore her regionalist writings, focusing specifically on how Roberts endeavors to portray the relationship between identity and place in her works while preserving the Kentucky landscape of the early 20th century. The book proposal I completed includes a substantial overview of the book, an annotated table of contents of eight chapters and a sample chapter that explores Elizabeth Madox Roberts as an ecofeminist writer and compares her work to the novels of Willa Cather.

PROJECT GRANT 2012-13



Doug Feldmann
Department of
Teacher Education

Innovation in Urban School Curriculum Design

Dr. Doug Feldmann traveled to Atlanta and Athens, Georgia in July 2012 to conduct part of his research for a series of professional journal articles he is writing (and has already published) on urban school curricular policy. Dr. Feldmann identified a successful after-school tutoring program within the Atlanta Public Schools, in the hopes that the publication of an article on this program will lead to its replication in other urban school districts that can benefit from its modeling. The program, entitled "Small Schools and Small Communities," effectively sub-divides the curricular components of the district's mission to meet the needs of individual neighborhoods in Atlanta. Dr. Feldmann interviewed the organizers of this program, toured its facilities, and witnessed first-hand the activities that make it a most worthwhile venture in curriculum studies and student engagement which other cities could follow. Additionally, Dr. Feldmann was able to receive assistance from Dr. Toby Graham, the director of the Hargrett Rare Book and Manuscript Library at the University of Georgia, for background research related to the development of previous such ventures in the Atlanta Public Schools.

Dr. Feldmann was pleased with the work he was able to complete as a result of this Project Grant, and is certain the data collected will enhance the quality of his new publications in the professional literature, which will be submitted to an international journal this fall.

The Nature of Moral Judgment from a Neuroethical Perspective

During my spring 2013 sabbatical I engaged in a critical examination of the contemporary “linguistic analogy” first recommended by John Rawls and developed more recently by Marc Hauser, John Mikhail and Susan Dwyer. The analogy suggests that moral competence can be understood along the lines of linguistic competence (here following the principles of Chomsky’s generative linguistics) such that intuitive judgments about morality are similar in revealing ways to intuitive judgments about grammaticality: quick, clear and with limited access to the operative principle behind them. For some contemporary moral philosophers this implies, as well, a moral grammar and the existence of innate and domain specific mental modules. I reviewed the standard criticisms of the analogy that are beginning to surface not only from philosophy but also from neuroscience, and social and developmental psychology. I then explored alternative linguistic models: focusing on cognitive linguistics as a viable alternative to Chomsky’s generative grammar. With this background I began to evaluate the potential for an instructive and improved analogy between intuitive moral judgment and intuitive grammatical judgment that avoids some of the main objections to Chomskyan claims. Rejecting the analogy with generative linguistics, my work seeks to elucidate a model of moral competence that (1) reflects recent advances in related sciences, (2) can be usefully and realistically applied to developing a model of moral judgment, and (3) avoids objections placed against the currently received analogy with generative linguistics. This research informs several talks and a couple of manuscripts in the early stages of preparation. The research from this sabbatical leave will also be included in my regularly offered Neuroethics course, scheduled next for fall 2014.

SABBATICAL LEAVE 2012-13



Rudy Garns
*Department of
Sociology,
Anthropology and
Philosophy*

Rowling’s *Deathly Hallows* and Christian Moralism



This project grant permitted me funds to travel to “Ascendio,” a conference marking the publication of the final volume in the Harry Potter series, *Harry Potter and the Deathly Hallows*. I am currently teaching this novel in two courses, English 455—“British Narrative Fantasy”—and English 302—“Fantasy in Literature and Film.” Attending “Ascendio” enriched my teaching, giving me insight not only into scholarly approaches to the Harry Potter series, but also Potter-inspired fan fiction, fan films and parodies, Potter-themed rock bands, and the market for Harry Potter merchandise. My favorite moments from the conference include a talk by Connie Neal, a Christian defender of the Potter books, and an interview with actor Chris Rankin, who played the character Percy Weasley in the Harry Potter films. I came back from the conference energized and ready to engage with my student’s enthusiasm for the Harry Potter books!

PROJECT GRANT 2012-13

Steven Gores
Department of English

Utilization of Photovoice Methodology in Social Work Research with Children

The 2012 Summer Fellowship allowed me the opportunity to fully reach the goals outlined in my application related to research and scholarship. The fellowship activities consisted of the following: 1) implementing and guiding a primary research project, 2) developing and submitting manuscripts to peer-reviewed journals, and 3) presenting a paper at a national peer-reviewed conference. I successfully concluded a research study with the Sarah Center of Cincinnati titled, “Women’s Perceptions of Success and Self-Sustainability through the Lens of Photovoice.” As the principal investigator of the project, I was overseer of the implementation from beginning to end. I surpassed my goal of submitting at least one manuscript to a peer-reviewed journal. I developed and submitted two sole authored manuscripts to peer-reviewed journals as part of my summer fellowship. One article is titled, “Perceptions of Hope among Low-Income African American Adolescents through the Lens of Photovoice.” The other article is titled, “Perceptions of hopelessness among low-income African American Adolescents through the lens of photovoice.” I also presented a paper at the 25th Annual Qualitative and Ethnographic Research Conference (national conference). A summary of the research and scholarship activities are further discussed in this document.

SUMMER FELLOWSHIP 2013



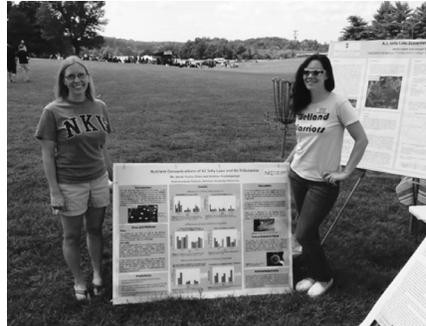
Dana Harley
*Department of
Counseling, Social
Work and Leadership*

SUMMER FELLOWSHIP 2013

Kristine N. Hopfensperger
 Department of Biological Sciences

Manuscript Writing on Ecosystem Processes Involving Nitrogen Removal and Greenhouse Gas Fluxes

With a 2013 Faculty Summer Fellowship I was able to involve undergraduate students in the process of writing peer-reviewed research manuscripts and submitted a large grant proposal to the National Science Foundation. During my past four years at NKU, I have involved undergraduate students from



start to finish in six different environmental research projects. Time was spent this summer analyzing the data from these completed projects and submitting finished manuscripts of the work to peer-reviewed journals. In total, we submitted three manuscripts this summer, are mid-way through writing a fourth manuscript, and have begun data analysis on two additional projects. I worked closely with nine undergraduate students by training them how to organize and statistically analyze the data and teaching them how to put together the story for a peer-reviewed paper. While busy analyzing data and submitting publications, my research lab had a very

productive summer conducting four new research projects involving a total of 11 undergraduate students. The Summer Fellowship was a true benefit to both me and my students as we were able to disseminate our research on water quality, invasive species, and climate change to the environmental scientific community.

SUMMER FELLOWSHIP 2013



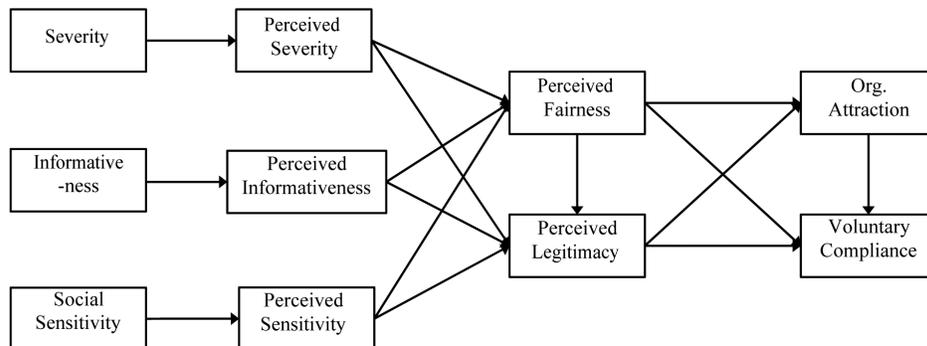
Seungcheol Austin Lee
 Department of Communication

A Communication Model for Workplace Health Promotion

Purpose. As workplace health promotion including smoke-free workplace policies and weight control programs are becoming more widely and strictly implemented, concerns are rising about employer control over employee health behaviors. The current research project, funded by the Northern Kentucky University Faculty Summer Fellowship, examined the roles of legitimacy and interactional justice, a communication aspect of organizational justice, in individuals' perceptions of a smoke-free workplace policy.

Methodology. Participants read messages describing a workplace health policy that varied in terms of severity, informativeness, and social sensitivity. A structural equation model was developed to investigate the effect of the messages on the perceptions of legitimacy and fairness, which in turn influenced compliance intentions and organizational attractions.

Findings. When a workplace health policy communicated sufficient information and conveyed social sensitivity, participants were more likely to comply with the policy and be attracted to the organization implementing the policy. Perceptions of legitimacy and fairness were important mediators in this relationship.



Practical Implications. The findings demonstrated that organizations should develop an effect strategy to communicate their workplace health policy to attract the most qualified job applicants and secure future compliance.

Theoretical Contributions. The literature on the fair process effect suggests that perceived procedural justice mitigates organizational members' reactions to negative outcomes. Analogous to this fair process effect, the current research project demonstrated that perceived interactional justice affects how people react to outcomes. This effect may be labeled *fair interaction* or *fair communication* effect.

The Sonoran Sublime

I traveled, hiked, and photo-documented UNESCO's (United Nations Educational, Scientific, and Cultural Organization) volcanic biosphere reserve of Pinacate, in the Mexican Sonoran Desert. This



Terrain exploration (pahoehoe lava)

added new information to use as research and reference material for the development of four new works of art. These new works are a part of my ongoing professional creative series, the *Carbon and Crust Project*, which is an eleven-year project of visual artwork that explores the sublime in geologic phenomenon. Moreover, this project is utilizing a new creative process (paint levying), to maintain my artistic practice that incorporates traditional and alternative materials in drawing and painting, and is helping sustain a national presence

within my profession. I will integrate, teach, and assess this new knowledge into my curriculum coursework at NKU, by assigning projects in advanced drawing and painting courses that challenge students to combine traditional and alternative materials of their choosing, and to assess the student works of art to evaluate for originality of ideas, content, materials usage, and their ability to verbally discuss their projects critically.



Finished works in polishing phase

PROJECT GRANT 2012-13

Marc Leone
Department of Visual Arts

Quantifying and Communicating Climate Change in Canada's Northern Forests



As a self-proclaimed (and Climate Reality-trained) climate change educator, I am at somewhat of a disadvantage: my training as a mathematician did not adequately prepare me for the myriad angles of the climate change story. However my training did help me in two ways: I learned to dig, and I learned to communicate. These “vignettes of climate change” represent my efforts to present climate change in an accessible yet educated way. “Accessible” implies that I’ve been able to communicate the issues and the science; “educated” implies that I’ve been able to dig up the appropriate background in both the literature and

throughout society (e.g. news sources, political discourse, etc.). The choice and style of the vignettes was motivated and inspired in part by two successive groups of grade 10 students, each of which spent two weeks at the Canadian Ecology Centre for an intensive experience in science. One of their focal topics was climate change, and my primary role was to accompany each group on a day-long field trip to North Bay, Ontario, where we toured the landfills and the water treatment plant; then I was to lead a summarizing discussion of their climate change studies in the context of the trip. The first session provided me an opportunity to gauge their interests and abilities; the second session gave me the opportunity to hone these topics and their presentations. I look forward to sharing these vignettes with more students here in Ontario, and my NKU students in the years ahead.

SUMMER FELLOWSHIP 2013

Andrew Long
Department of Mathematics and Statistics

SUMMER FELLOWSHIP 2013



Julie Mader-Meersman
*Department of
Visual Arts*

Artist's Web-Books for Handheld Mobile Devices: An Interactive Channel for Design, Art, Authorship and Exhibition

My 2013 Faculty Summer Fellowship was used in tandem with a 2013-14 Faculty Project Grant for the creation of an original, creative project: the design and production of a series of three digitally interactive artist's books designed for iPhone touchscreen mobile devices, and an app to house them. Called *The Book Worm Tales: Volume I, Volume II and Volume III*, each book is a highly visual, participatory journey through a real, iconic, physically vulnerable rare book artifact as told from the point of view of a 'book worm.' The three books selected as the respective settings for each artist's book are historically and culturally significant artifacts currently housed within special collections in Cincinnati. They span three broad content categories, each representing significant areas of human concern, whose proliferation was possible in large part because of books: literature, religion and science.

Inspired by the biodegradation of rare and important book works caused by beetle larvae, moths, mold, and other forms of physical damage, the project is an opportunity to poetically reflect on the rapidly changing media landscape of books, and other forms of published works, while virtually preserving and amplifying experiential and material aspects of the highlighted books in the process. With the recent proliferation of new devices in which to artfully experience and consume published content, the project also seeks to take advantage of the visual sophistication possible with use of the standards-based web languages of HTML5 and CSS3 for production and widespread dissemination.

This project has been accepted for presentation at the November 2013 conference, "Resurrecting the Book" to be held in Birmingham, UK in honor of the 2013 opening of the new Library of Birmingham, the largest public library in Europe. My paper presentation is titled, "Artist's Books for Handheld Mobile Devices: Expanding the Artist Book Genre."

SABBATICAL LEAVE 2012-13



George Manning
*Department of
Psychological Science*

Stress: Living and Working in a Changing World

My goal was to review current research and findings in the areas of stress physiology, personality and stress, stress across the life span, personal stress, interpersonal stress, occupational stress, and stress prevention, and revise the text, *Stress: Living and Working in a Changing World*, accordingly.

Additionally, my goal was to revise the supporting Instructor's Resource Guide with test bank, discussion questions, cases and applications, suggested readings, power-point presentations, and current bibliography for each chapter of the text.

My planned approach was to collaborate with academic and practicing professionals to ensure that the content of the revised text would be current, accurate and relevant.

I used the planned approach and both goals were achieved. *Stress: Living and Working in a Changing World, 3e* and the *Instructor's Resource Guide* have been revised and submitted to the publisher, Savant Learning Systems, for publication, 2014.

After being granted permission for sabbatical leave, I received a request from McGraw-Hill to revise *The Art of Leadership, 4e* and the supporting *Instructor's Resource Guide*. This was accomplished during the sabbatical period and the manuscripts have been submitted to McGraw-Hill for publication 2014.

Stress 3e and *The Art of Leadership 5e* would not have been accomplished without the tremendous support of the university.

A Project on Mathematical Problem Solving

During my sabbatical leave, I solved three newly posed mathematics problems in *Crux Mathematicorum*, the Canadian Mathematical Society's professional journal of problem solving. I submitted my solutions to that journal for possible publication.

My sabbatical leave officially ended after Fall semester of 2012, but I continued to attempt to solve journal problems using a variety of analytic and algebraic techniques that I honed during my leave.

I am pleased to say that I have recently been successful in solving problem 3741 posed in *Crux Mathematicorum* by Hungarian mathematician, Peter Ivady, and I will submit my solution to that journal later this month.

I have also created a straight-forward algebraic proof of problem E2245, a result first posed by A.W. Walker of Toronto, Canada and published in 1970, in *The American Mathematical Monthly*. In August 1971, that journal published Walker's proof of his result, since it was the only correct proof submitted. In November 1972, A. van Tooren of Leusden, Holland published his proof Walker's inequality for the case that the nonnegative numbers in the statement were not the sides of a triangle. The editor wrote: "A straight-forward algebraic proof of (*) (Walker's inequality) valid for all nonnegative a, b, and c is still solicited."

$$(*) \quad a^2b^2c^2(a+b-c)(a-b+c)(-a+b+c)(a+b+c)^3 - (a^2+b^2-c^2)(a^2-b^2+c^2)(-a^2+b^2+c^2)(a^2+b^2+c^2)^3 \geq 0$$

In August 1973, *The American Mathematical Monthly* published a proof of Walker's result submitted by Robert Breusch of Amherst College. However, Breusch's proof was neither straight-forward nor algebraic.

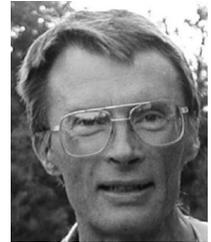
I have searched the mathematical literature and have found no record of the *Monthly's* solicitation ever being settled. However, I have recently created a straight-forward algebraic prove of Walker's inequality which I intend to speak about in the Department of Mathematics and Statistics Friday Seminar and to submit to *The American Mathematical Monthly* for possible publication.

The same technique I employed to prove Walker's inequality also enabled me to give a new proof of problem 2927 posed in 2004 in *Crux Mathematicorum*: If are positive real numbers then

$$\frac{a^3}{b^2 - bc + c^2} + \frac{b^3}{c^2 - ca + a^2} + \frac{c^3}{a^2 - ab + b^2} \geq \frac{3(ab + bc + ca)}{a + b + c}.$$

I am very grateful to the University for the opportunity that my sabbatical leave gave me for continued scholarly activity in mathematics, beyond what would otherwise be possible.

SABBATICAL LEAVE 2012-13



Philip McCartney
Department of
Mathematics
and Statistics

The Magnitude and Nature of International Retail Divestment (IRD) and US Retailers

This research has resulted in the creation and ongoing development of a database examining the internationalization process of the 100 largest US retailers. This provides an overview of international expansion by company on a by country, by year, and by entry mode basis. This data is essential to consider the outcome of the internationalization process.

The largest US retailers continue to rely heavily upon their domestic market and North America for the bulk of their sales. International US retailers with few exceptions focus upon a relatively small number of markets. US global retailers in fashion retailing appear to enjoy success, but for some the internationalization process is in its infancy, and assessment of performance is premature. US global retailers focused on the specialty superstore have entered few markets, and yet have divested from most markets. US multinational retailers perform well in North America, but performance in other regions has been disappointing, resulting in international retail divestment. Despite this, they appear increasingly committed to Emerging Markets worldwide. IRD theory suggests they will meet with limited success and face costly market exits.

A typology of US retailers is developed in terms of internationalization, and IRD.

SUMMER FELLOWSHIP 2013



Michael McDermott
Department of
Management

SABBATICAL LEAVE 2012-13

Diana McGill
Department of Chemistry

Development of a New Undergraduate Research Program Focused on Biochemical and Biophysical Studies of Staphylococcus Biofilm Formation

The ability of Staphylococci to form biofilms allows the bacteria of this genus to cause many related medical issues, including devastating infections by MRSA (methicillin-resistant *S. aureus*). The goal of this sabbatical research was to gain a better understanding of accumulation association protein (Aap) of *Staphylococcus epidermidis*. This protein, Aap, has been shown to enable the bacteria to stick together to form biofilms. The protein is composed of several important regions, or domains: A-repeat (Arpt), alpha-beta ($\alpha\beta$), and B-repeat (Brpt). While others in the Herr lab at the University of Cincinnati College of Medicine studied various lengths of the Brpt region, the focus of this sabbatical work was to begin characterization of the Arpt and $\alpha\beta$ domains. Vectors expressing these two regions of Aap were analyzed through DNA sequencing and confirmed to contain the desired cDNA sequences. Subsequently, protocols were developed that allowed these two protein regions to be purified. Exact masses of the purified proteins were verified through mass spectrometry while protein sequence and identity were verified through tryptic sequence analysis. Biophysical characterization of both Arpt and $\alpha\beta$ regions was carried out with circular dichroism spectrometry and analytical ultracentrifugation. Crystallization studies of the $\alpha\beta$ domain were initiated. And finally, both domains were fluorescently tagged and sent to the Consortium for Functional Glycomics for initial glycan binding screening. In summary, during this sabbatical two regions of the Aap were purified and characterized for the first time, allowing the role of these regions in biofilm formation to be assessed.



SABBATICAL LEAVE 2012-13

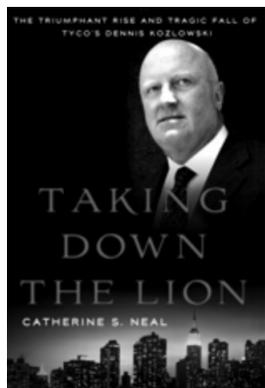
PROJECT GRANT 2012-13



Catherine S. Neal
*Department of
Accounting, Finance
and Business Law*

A Legal and Ethical Analysis of the Extraordinary Life, Career, Trials, Conviction and Imprisonment of L. Dennis Kozlowski, Former CEO of Tyco International, Inc.

I applied for and was granted a sabbatical leave and a project grant for the 2012-13 Academic Year. During my sabbatical leave, with the support of the project grant, I researched, wrote, and published a non-fiction trade book in my area of expertise—business ethics.



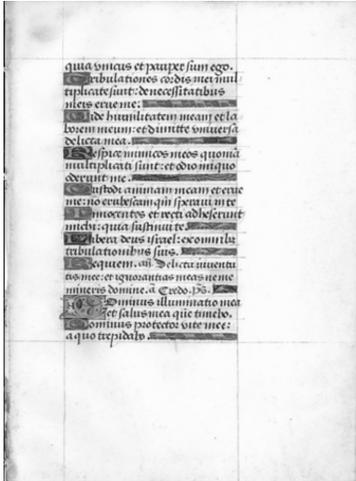
TAKING DOWN THE LION: The Triumphant Rise and Tragic Fall of Tyco's Dennis Kozlowski shares the extraordinary and inglorious end of a brilliant business career. It is an inside look at the former CEO who is best known for his \$6,000 shower curtain and for throwing a \$2 million birthday party. As the widely admired CEO of Tyco International Ltd., Dennis Kozlowski grew a little known New Hampshire conglomerate into a global giant. Kozlowski's ascent from a modest background to the top of a rapidly growing multi-national corporation epitomized the American Dream. **In TAKING DOWN THE LION**, readers will experience the stunning series of events that ended Kozlowski's career and left Tyco embroiled in a public and very costly corporate scandal.

My sabbatical leave and project grant allowed me to undertake an ambitious project that led to the most challenging, rich, and rewarding work of my career. The research for and writing of this book deepened my substantive knowledge more than I thought possible, and I became a better researcher, writer, and teacher. The experiences of my first sabbatical leave were amazing! My students and the university will reap benefits from this project for many years into the future.

The book will be released in the U.S. on January 7, 2014 and will be sold internationally sometime later in 2014. I will be promoting the book in the U.S. and Europe through media appearances (national television and radio spots), social media, book signings, and lectures.

Cataloguing Medieval Manuscript Fragments in the Northern Kentucky/Cincinnati Region

With the aid of a 2012-13 Faculty Project Grant, I was able to purchase a suitable digital camera, macro lens, tripod, and additional photography-related materials in order to start a project to catalogue and, wherever possible, record digitally the miscellany of medieval manuscript fragments scattered around the Northern Kentucky/Cincinnati region. The project's goal is to preserve these potentially valuable artifacts and make them accessible to academics, librarians, students, and educators as well as to support and promote the research and teaching of manuscript studies. Medieval manuscripts, even "orphaned" fragments, represent an important category of primary source material and are essential to the study and understanding of human society and its achievements. By identifying previously undocumented, uncatalogued, and miscatalogued medieval manuscript fragments, I will be able to piece back together manuscript books, locate previously unknown medieval texts, and identify the distribution of medieval books in the region over the past two hundred years. This project is also part of a collaborative scholarly effort to catalogue and digitize medieval manuscript fragments across the United State under the directorship of Dr. Scott Gwara (University of South Carolina).



PROJECT
GRANT
2012-13

SUMMER
FELLOWSHIP
2013

Tamara F. O'Callaghan
Department of English

The Virtual Palimpsest: Teaching Students to Read Middle English Literature

With the aid of a 2013 Summer Fellowship, I made substantial progress on *The Augmented Palimpsest* (formerly named *The Virtual Palimpsest*), a digital humanities tool that explores how the medium of Augmented Reality (AR) can be used in teaching medieval literature. Using Geoffrey Chaucer's fourteenth-century Middle English poem, *The Canterbury Tales*, the tool will deliver digital enhancements that emerge from the printed page via a smart device. They will provide the reader with linguistic, historical, and cultural contexts, thus giving students greater access to medieval material culture and history. The digital content will include 3D models of medieval artifacts and architecture, large and complex enough to be walked around and viewed from multiple angles.

I am working on this project in collaboration with Dr. Andrea R. Harbin (SUNY Cortland) and under the technical guidance of Dr. Alan B. Craig (University of Illinois at Urbana-Champaign). Over the summer of 2013, Dr. Harbin and I presented the concept of our project at a poster session at a major conference, wrote an article on the technology behind the project to a peer-reviewed journal, submitted the article to a peer-reviewed journal, had the article accepted with revisions, revised the article for final submission and acceptance, spent six days at the University of Illinois working on the project with Dr. Alan Craig, and drafted a full grant application for a NEH Digital Humanities Start-Up Grant.

SABBATICAL LEAVE 2012-13



Daryl Orth
*Department of
Construction
Management*

Prefabrication

Prefabrication is a process where piping assemblies and equipment assemblies are built in a shop under a control environment and then shipped to the job site for installation. While on sabbatical, I interviewed field superintendents, shop superintendents, project managers, and estimators from T. J. Dyer on what worked and what did not work in their prefabrication process. I also spoke with other non-competing mechanical contractors on what worked and what did not work with their prefabrication process. I then compiled a list of the common problems with prefabrication and categorized them from greatest to least. I worked with a committee to develop solutions to these problems.

Three active construction job sites were monitored on a weekly basis to examine the amount of prefabrication that fit in the field without having to be cut apart. The goal of all prefabrication is to fit in place in the field so it does not have to be cut apart. If the prefabrication is being cut apart in the field, then the company is losing the advantage of prefabrication. If any prefabrication was cut apart in the field, an inquiry was performed to prevent it from happening again.

Cost analyses were also performed comparing different materials such as Copper Pro Press, Copper Sweat, and Aquatherm. Each of these piping materials has advantages and disadvantages. As a company you want to use the piping material that is the cheapest to purchase and install. You also need to make sure that quality is not being sacrificed by choosing the cheapest piping material. My task was to create a chart for the different piping systems and develop a first choice, second choice, and third choice for the different piping systems.

SABBATICAL LEAVE 2012-13

SUMMER FELLOWSHIP 2013



Vincent E. Owhoso
*Department of
Accounting, Finance
and Business Law*

Is A Good Auditor Always a Good Auditor?

During my half-year sabbatical I investigated whether a good auditor is always a good auditor and developed a tutorial project for teaching Peachtree accounting software. Upper level accounting students at an international university and industry professionals participated in the projects. The participants were each given a specialized task in an auditing area in which they were familiar and unfamiliar. The theory suggests that auditors would perform well in detecting errors in the familiar task area but only good auditors would perform reasonable well in the unfamiliar task area. The results show that a good auditor is only a good auditor in his or her area of specialization and is also a good auditor for routine but not complex tasks in an unfamiliar task area. Inexperienced subjects were generally good only at performing routine tasks in their familiar task area. The implication is that if a good auditor is always a good auditor, accounting firms could plan their human resource needs more efficiently. Also, I completed a 12 - lesson tutorial manual for teaching Peachtree accounting software. The manual covers the basics of Peachtree and the concepts of controls in an accounting technology environment. In this segment, the tutorial explores how the software can be used to segregate duties in an organization and to secure a company's financial and nonfinancial data. A major benefit of the manual is that students can use it to better understand the control issues facing today's accountant.

Assessing Effective Controls that Mitigate Occupational Fraud in Different Corruption and Computerization Environments

The project I worked on during the summer examined whether different corruption and computerization environments affect auditors' assessment of effective controls that mitigate occupational fraud, particularly employee fraud. Defined as the use of one's occupation for personal enrichment through deliberate misuse or misallocation of the employing organization's resources or assets, occupational fraud has been on the rise and the trend is not expected to abate soon. To carry it the study, I identified various characteristics of four corruption and computerization environments for which occupational fraud could occur. Then I developed an instrument which defined selected internal controls that can mitigate employee fraud and administered it to a group of internal and external auditors, as well as upper level accounting students who assessed which controls would be most effective in each of the four corruption and computerization dimensions.

Preliminary results suggest that five internal controls are especially effective in mitigating payroll fraud. Two of these controls include the extent to which well developed and documented policies and procedures are being deployed in payroll processes and the separation of duties between preparation of personnel form, payroll register, and approval of payroll, and periodic checks for employees with the same name, employee numbers or bank accounts. Internal auditors were more conservative than external auditors in assessing the effectiveness of "management review processes" in mitigating occupational fraud in high corrupt and low computerization environment.

Supporting Effective Instructional Practices in Inclusive Middle Level Classrooms

During the Spring 2013 semester, Dr. Prather-Jones took a sabbatical in order to work with co-teaching teams from a local middle school. Dr. Prather-Jones worked with two middle level cooperative teaching teams (each made up of one general education and one special education teacher) in order to guide and support the development and implementation of effective instructional practices in inclusive (i.e. include students both with and without disabilities) classrooms. Dr. Prather-Jones focused particularly on assisting these co-teachers with understanding and more effectively implementing various co-teaching approaches (i.e. parallel teaching, station teaching, team teaching) so that they may take stronger advantage of having two teachers in a single classroom. Dr. Prather-Jones also worked with these teachers on the development of lessons that adhered to the major tenets of universal design for learning (UDL), particularly related to providing multiple methods of representation in instructional methods and materials, as well as allowing multiple ways for students to express their learning. Multiple observations of both co-teaching teams were conducted throughout the Spring semester, in addition to regular meetings both during and after the school day.

The 2013 summer fellowship was utilized as a follow-up to the Spring 2013 sabbatical. This time was used to begin the analysis of the data from the observations, meetings, and lessons that had taken place during the spring. In addition, Dr. Prather-Jones prepared three different proposals for conference presentations (one state and two national conferences) based on this work. As of October 15, 2013, two of those proposals had been accepted. Notification regarding the third proposal is due in November 2013.

SABBATICAL LEAVE 2012-13 SUMMER FELLOWSHIP 2013



Bianca Prather-Jones
*Department of
Teacher Education*

Book Completion: Ballot Accessibility and the Minority Language Provision



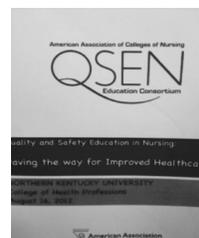
This summer fellowship was to complete a book manuscript for publication. As a whole, this book demonstrates the strong relationship between accessibility, state policy and participation and the role this has on vote choice for minority voters, particular in the area of direct democracy. This provides insight into the complex relationship that has evolved into the current state of governance across the United States and how states interact with the federal law of the Minority Provisions Act. By looking at this relationship from a variety of ways (historical and policy analysis), experiments, and statistical analysis, this book provides a new perspective of the direct democracy process and the implications for minority voters and their efficacy.

SUMMER FELLOWSHIP 2013

Shauna Reilly
*Department of
Political Science,
Criminal Justice
and Organizational
Leadership*

Quality and Safety Education in Nursing and Allied Health: Enhancing Faculty Capacity

Health care is not as safe as it could be nor as safe as health care consumers believe it to be. Statistics indicate that 4% of all patients in the hospital setting are harmed by care that is intended to help. Medical errors kill 98,000 people per year. That is twice the number of women who die from breast cancer and almost four times the number of people who die from AIDS each year. In an effort to better prepare faculty for educating the future nurses, educators, and practitioners within our programs of nursing, a one day Quality and Safety in Nursing Education (QSEN) workshop was developed. The purpose of the workshop was to foster faculty expertise by increasing awareness with regard to the knowledge, skills and attitudes (KSA) necessary to continuously improve the quality and safety of the healthcare systems in which our students will work. The workshop was conducted on August 16th, 2012. All full-time and part-time faculty associated with the College of Health Professions were invited to attend. Additionally, we were able to invite members of the nursing advisory board and representatives from other schools of nursing in the region. We had over 60 participants attend the conference. In alignment with the mission and values of Northern Kentucky University, the project grant enabled us to reach many voices that will carry the message to students in order to ultimately improve health care quality and safety.



PROJECT GRANT 2012-13

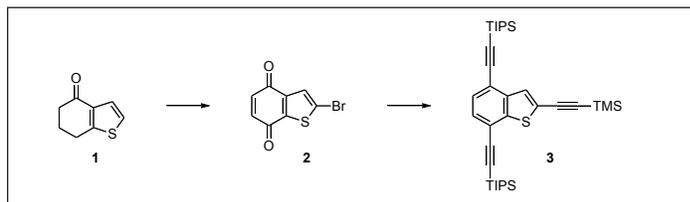
**Mary Gers
Erin Robinson**
Department of Nursing

PROJECT
GRANT
2012-13**Raquel Rodriguez**
*Department of Music***“Cincinnati Virtuosity”: The Music of Herman Bellstedt and Frank Simon**

Cincinnati has a great tradition of supporting the arts. There have many significant performers of note associated with Cincinnati. Two such individuals were Herman Bellstedt and Frank Simon. I recorded a CD of the solo cornet music of these gentlemen. The cornet solos represents a time of town wind bands that featured virtuosic soloists. I recorded nine cornet solos with piano accompaniment in four days. The recording process was completed in two sessions, each session lasting 2 days and consisting of 4-5 hours each day. The entirety of the CD recording was based at the Cincinnati Conservatory of Music (CCM). This was a symbolic place to record these solos as both Bellstedt and Simon taught at CCM. In addition, the conductor of the Frank Simon Band, Carol Dunevant, assisted in the recording process. The project was an incredible experience for me that will bring attention to NKU and Cincinnati's great heritage in wind bands.

SABBATICAL
LEAVE
2012-13PROJECT
GRANT
2012-13**KC Russell**
*Department of Chemistry***Molecular Electronic Devices from Eneidyne – Pentacene Compounds**

My research at Northern Kentucky University largely focuses on the synthesis of organic molecules that may function as sensors. Some of the compounds that we prepare change their color or no longer give off a color when in the presence of an acid. Not only do we work to find such compounds,



but we also endeavor to understand why these compounds behave the way that they do. Within the last few years we have begun to see molecules similar to ours in the literature being used for even more practical applications, such as in the

preparation of organic thin film transistors (OTFT), organic light emitting diodes (OLED) and solar cells. During this sabbatical I spent time at the University of Kentucky Center for Applied Energy Research to learn about these devices, how they are prepared and studied. In particular, I worked on the synthesis of a new organic molecule that can be coupled with a variety of other compounds to study each compounds potential as a new organic material. The synthesis began with commercially available compound 1 and proceeded through four highly efficient steps to produce compound 2. The final target, 3, was not prepared, although it only requires two additional reactions from 2. By agreement with my sabbatical host, the intermediates have returned with me to NKU so that the synthesis can be completed by NKU undergraduates this summer and the project can come to completion. This work was also supported by a Project Grant to purchase BTI to continue studies in house.

Elementary Chinese: An Interactive Text

My major accomplishments during the sabbatical are summarized as follows:

1. Completion of Book II of a four-volume digital textbook entitled *Elementary Chinese: An Interactive Text*, which is under contract with the National Social Science Press
2. Submission to the publisher of Book I and Book II with each containing ten lessons, approximately 1300 pages, 330 audio files, and 330 animation files.
3. Uploading of Book I and Book II for use by NKU students enrolled in CHI 101 and CHI 299 in the fall semester of 2013
4. Completion of a draft copy of Book III and Book IV with each containing nine lessons
5. Agreement reached with a professor of Spanish at NKU with regard to a Spanish version of Book I and Book II
6. A section of Lesson 1, Book I translated into Spanish to determine the amount of time to be needed for the conversion project and possible difficulties to be encountered
7. Agreement with a professor of German at NKU concerning the production of a German version of the text



NKU Students using
Elementary Chinese: An Interactive Text

The sabbatical leave made it possible for me to complete and submit the first two books of my interactive project and write a working draft version of the other two. Without the leave, I would have found myself still struggling to finish the first part of Book II.

Investigation of the Impact of Nutrient Availability on Genome Stability in *Saccharomyces Cerevisiae*

To better understand genetic factors that influence the development of cancers we must identify genes that play roles in regulating the stability of the genome and then determine how loss of these genes impacts cell regulation. In this project we have utilized the budding yeast, *Saccharomyces cerevisiae*, to study several sets of gene mutations for their impact on chromosomal loss. These gene sets were identified as candidates of potential interest in previous studies, and are more extensively investigated here to characterize the full breadth of genes that function in metabolism of amino acids. Six genes of interest have been identified as having impacts when heterozygously mutated and studies continue to characterize the impact of full loss of each gene. Other studies were undertaken to determine the impact on chromosome stability due to loss of genes that function in the central regulation pathway known as TOR. These studies show significant instability effects due to mutations and add to our hypothesis that this pathway could be altered in our metabolism mutant strain resulting in the instability phenotypes observed. Therefore during work on this project we have also been developing assays that will allow us ask if the instability we see in these strains is due to alteration TOR signaling. These assays are being standardized to allow for detection of small fold changes in activity and be applicable to any strains of interest. From May 2012–June 2013 a total of 18 undergraduate students have worked on projects outlined above and related to these topics. 12 poster presentations were given involving 16 of these students, including 4 students attending, receiving travel awards and presenting at a national meeting in March 2013.

SABBATICAL LEAVE 2012-13

Chenliang Sheng
Department of English

PROJECT GRANT 2012-13



Erin Strome
*Department of
Biological Sciences*

SABBATICAL LEAVE 2012-13

Cheryl Swayne
*Department of Advanced
Nursing Studies*

Implementation of Civic Engagement in Graduate Nursing Curriculum

The primary goal of the sabbatical project was to review the curriculum for the graduate nursing courses in order to implement a required civic engagement component. The project began with an overview of the vision and mission of the College of Health Professions. Then each graduate course syllabus was evaluated based on the program's curriculum. The course syllabi were reviewed to identify the learning outcomes and related core concepts of the graduate program in the Department of Advanced Nursing Studies. After completion of a review of each course syllabi, a table was created for the relevant courses in each specialty track offered by the Department of Advanced Nursing Studies. The specialty tracks include Nurse Executive Leadership, Nurse Informatics, Nurse Educator and Nurse Practitioner. Recommendations for a plan to change the curriculum for the graduate program are in the beginning stages of discussion in the department committees this academic year. Implementation of a required civic engagement component is being considered for relevant courses as potentially being part of a capstone project. Any change in the curriculum will require time and commitment by the entire graduate faculty and will also result in the need for changes in the program evaluation plan. The program evaluation plan has not been revised at this time due to the time needed to develop the plan to implement the changes in the curriculum. Once the changes are implemented in the graduate program, opportunities for publication and presentations on the topic of civic engagement will be further developed.



SUMMER FELLOWSHIP 2013



Brandelyn Tosolt
*Department of
Teacher Education*

Students' Perceptions of Teachers: Investigating the Intersectionality of Race, Gender, and Gender Identity

The purpose of this research is to develop a large-scale internet-based research project that investigates the intersections of race, gender, and gender identity in students' perceptions of their teachers. This study is important as previous research has demonstrated the importance of students connecting with their teachers as people before being willing to accept the instruction teachers are giving (Birch & Ladd, 1997; Goodenow, 1993; Murdock & Miller, 2003; Patrick, Ryan, & Kaplan, 2007; Valenzuela, 1999). However, other research has demonstrated that students of different demographic groups view different behaviors as evidence of teacher care (Tosolt, 2008, 2009, 2010). This research will directly influence the preparation of pre-service teachers, as well as facilitate more meaningful professional development for in-service teachers.

While the original intent of this fellowship was to launch the instrument, I found very quickly that initial piloting revealed methodological concerns. Thus, I spent significant time delving deeper into the field of vignette research and developing a more robust research method. The result is a stronger framework for the research, which is reflected in the attached report.

Antisemitism in 19th Century Colonial Algeria

This past year I made significant progress on a book project I have under contract with Brill for a monograph on antisemitism in colonial Algeria and France in the 19th century. I gathered most of my primary sources, worked in the archives in France and did extensive background readings in the relevant subjects such as the political and economic history of 19th century France, the history of antisemitic stereotypes; the history of the colonization of Algeria, including both the French and Spanish *colons*



and the political history of colonial Algeria; the history of the press in the two localities and the history of the various streams of French socialism in the 19th century. I also created biographical indices for the most important figures from Algeria. I presented my research to graduate students at the Hebrew University in Jerusalem and received a grant to continue archival work from Hebrew University's Vidal Sassoon International Center for the Study of Antisemitism. I will be presenting a paper in London at the School of Oriental and African Studies (SOAS) in November and am in the process of applying for outside funding to complete the project. The Sabbatical

was essential in allowing me to make this progress and laid the foundation for accomplishing the book project. The research has immediate relevance to events taking place in the Middle East and North Africa as the hoped for transition to democracy has become violent and led to ethnic conflict and even civil war. Learning from the case study of colonial Algeria, where the transition from dictatorship to limited democracy was also accompanied by ethnic violence will allow for a more sagacious advocacy of democracy while promoting the projection of minorities and other vulnerable populations.

SABBATICAL LEAVE 2012-13

Sharon Vance
*Department of History
and Geography*

Using Remote Sensing Techniques for Evaluating Honeysuckle Spatial Distribution: A Case Study at Hamilton County Parks, Ohio

How to manage and control invasive plants, Amur Honeysuckle, is a big challenge for many park managers in the eastern and mid-western United States. *In-situ* surveys or aerial camera systems are impractical to map honeysuckle distributions in large forest areas because of limited staff time and extensive labor costs. The goal of this project is to apply remote sensing techniques to map honeysuckle spatial distributions in a test field, Hamilton County Parks, Ohio. Because past higher resolution satellite images for the study area are not available, some past free satellite images with low resolution acquired at a specific time period (mid-November) were explored to delineate honeysuckle from overstory woody species in this summer.

Based on the project plan in the summer fellowship proposal, I conducted the following research work in the summer:

- I explored United State Geological Survey (USGS) website and obtained a free (low resolution) satellite images that were obtained on Nov. 5, 2011.
- I extracted a typical vegetation index, Normalized Difference Vegetation Index (NDVI), from the free satellite data.
- The NDVI vegetation index map is combined with existing GIS map of the test field. The map helps to show spatial distribution of honeysuckle in the test field.

In addition, the high resolution satellite image data will be collected in the middle of November in this year. A field data collection will also be conducted in the coming November. A few vegetation indices will be tested to optimally extract honeysuckle feature in the test field from this year's satellite images.

As a pilot program utilizing advanced geospatial analysis, this project will provide important information for understanding the status of wildlife habitats and for implementing site-specific management in parks and nature preserves.

SUMMER FELLOWSHIP 2013



Hongmei Wang
*Department of
Computer Science*

NKU
NORTHERN
KENTUCKY
UNIVERSITY

