

# NKU Faculty Research, Scholarship and Creative Activity Highlights

VOLUME 1 // NUMBER 2

## CRISTIANE BIAZZIN

Assistant Professor, Management

09/01/2020

### [Supply Chain Management and Gender: Challenges for a Changing World](#)

Dr. Biazzin and researchers from Fundacao Getulio Vargas (Brazil) have been investigating the gender inequality gap in global supply chains. In this study, they argue that the gendered bias provoke consequences for management and supply chains, including ambiguous aspects: it includes not only transnational corporations and the use of modern forms of slavery dependent on economic migrants (legal/illegal) and refugees, especially women, but also actions regarding social corporate responsibilities and the inclusion of women-owned business in the supply chain.

This chapter describes how the gender relations that are present in the globalization process do not reflect the neutral practice presented in the literature, but instead represent a gendered phenomenon that promotes new arrangements of inequalities that impact supply chain management. For decades, gender inequity in supply chains was a “hidden” problem in several sectors, but in the early twenty-first century, it is an overt challenge for the supply chain management. Gender inequity exists in supply chains when there is low participation of women-owned businesses in supply, a clear wage inequity along the supply chain, and the identification of modern slavery or forced labor related to gender in any tier of a supply chain. A future agenda for gender issues in supply chains should address a range of issues, from the increase in the number of women-owned suppliers and its impacts to equalization of income among genders throughout supply chains, to complete eradication of modern slavery in local and global supply chains.

\* Paiva, E.; Tonelli, M.J., Miguel, P.; Biazzin, C. (2020) Supply Chain Management and Gender: Challenges for a Changing World. In Choi, T., Li, J.J., Rogers, D., Schoenherr, T. (Eds). The Oxford Handbook of Supply Chain Management. Oxford University Press. DOI 10.1093/oxfordhb/9780190066727.013.37

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## JANEL BLOCH, RYAN PADGETT, SHAWN RAINEY, HOLLY RIFFE and KIMBERLY SCRANAGE

Enrollment and Degree Management; English; Social Work; Institutional Research

05/30/2020

### [Is Higher Education Ready for Its Learners? NKU studies whether Higher Education is Ready for its learners.](#)

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# NKU Faculty Research, Scholarship and Creative Activity Highlights

Aidya recognized that a lengthy planning time and ongoing debate about the direction of the strategic planning could delay the university's response to sweeping student demographic shifts in the higher education landscape. Public higher education is ruled by the principles of shared governance. [...]within a campus-wide strategic planning process, NKU purposefully involved the entire campus community. Activities were directed at setting goals, career planning, networking, building a résumé, financial literacy, and providing engagement opportunities in high-impact practices such as internships and student research. To develop challenging goals that would remove obstacles to student success, NKU needed to create a culture of delivering student services or performing institutional operations that were faster, smarter, cheaper, and in collaboration with regional partners.

\* Bloch, J., Padgett, R. D., Rainey, S., Riffe, H., Scranage, K., Schultz, L., & Tagher, G. (2020). Is Higher Education Ready for Its Learners?. *Planning for Higher Education*, 48(3), 13-22.

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## RICK BOYCE

Professor, Biological Sciences

03/15/2020

### [Dr. Boyce and students find that a native fungus slows down the growth of the introduced Amur \(bush\) honeysuckle.](#)

Amur honeysuckle is an important invasive plant species in the Ohio River Valley. Previous work has shown extensive dieback of honeysuckle in the region, coupled with the appearance of the native fungal pathogen, honeysuckle leaf blight. Our goal was to find if the blight causes growth decline or mortality in Amur honeysuckle. Seedlings were grown under greenhouse conditions in 2017. Treated seedlings were infected with a spore solution prepared from blighted leaves that were collected from the field and grown in a greenhouse after leaf blight began to develop. Growth (height, total stem length, leaf area, and leaf number) and dark-adapted chlorophyll fluorescence (Fv/Fm), a measure of plant health, were measured periodically over the growing season. Larger, faster-growing plants were more likely to be infected, and their growth rates were subsequently reduced much more than uninfected treated plants and controls. There were positive correlations between Fv/Fm and RGR (relative growth rate). Blighted leaves had lower values of Fv/Fm than uninfected leaves. No infected plants died, but this experiment supports our hypothesis that leaf blight causes a significant growth decline in Amur honeysuckle. Future work will determine if the patterns seen under greenhouse conditions hold in the field.

\* Boyce, R. L., Castellano, S. M., Marroquin, A. N., Uwolloh, O. M., Farrar, S. E., & Wolfe, K. P. (2020). Honeysuckle leaf blight reduces the growth of infected Amur honeysuckle (*Lonicera maackii*, Caprifoliaceae) seedlings in a greenhouse experiment. *Journal of the Torrey Botanical Society*, 147(1), 1–8. <http://doi.org/10.3159/TORREY-D-19-00025.2>

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# NKU Faculty Research, Scholarship and Creative Activity Highlights

## RACHAEL CLARK

Lecturer/Advisor, Psychological Science

07/23/2020

[Psychiatric Nursing Science: Current Status and Future Prospect - Dr. Clark publishes article in special issue of Archives of Psychiatric Nursing](#)

The 2011 Institute of Medicine, Future of Nursing report recommended an increase in the number of doctorally prepared nurses to conduct discovery and translational research promoting individual and population health. The present study used the NIH Reporter, an on-line database of current, active research funded by federal agencies, to identify behavioral and social research conducted by nurse principal investigators (PIs) from Schools of Nursing. A total of 88 studies were identified that met these criteria and half were focused on mental health problems or populations. Mental health research studies were further classified as psychiatric nursing mental health scientific priority research using categories developed by the American Psychiatric Nurses Association (APNA). Nurse PIs were classified as psychiatric nurse scientific experts using publicly available websites to determine specialty credentials. Of the 44 initial studies deemed as mental health studies 26 were led by PMH nurse scientist experts. A total of 29 studies fell into four of five psychiatric mental health nursing priority categories. Most APNA priority studies focused on very young and older populations. There were notable gaps in funding for the seriously mentally ill and other traditional mental health populations and settings.

\* Hauenstein, E. J. & Clark, R. S. (in Press). Psychiatric nursing science: Current status and future prospect. Archives of Psychiatric Nursing. <https://doi.org/10.1016/j.apnu.2020.07.008>

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## JONATHAN S. CULLICK

Professor, English

3/23/2020

[Dr. Cullick and colleague publish book offering new views on Harper Lee, author of To Kill a Mockingbird](#)

To Kill a Mockingbird is one of the most beloved novels in the United States. Published in 1960, it received the Pulitzer Prize, and the movie starring Gregory Peck swept the Academy Awards. Oprah Winfrey has called it "our national novel." As of today, more than forty million copies have been sold. It is frequently taught in high school classrooms. However, in 2015, HarperCollins announced the discovery of another manuscript by Harper Lee, Go Set a Watchman, which had been concealed in a safe deposit box for fifty years. Immediately, questions emerged about its publication. Particularly unsettling to readers was new information about the hero of Mockingbird, the lawyer Atticus Finch, who defends a wrongly accused black man and protects him from a lynch mob. Now, in Go Set a Watchman, he is a racist. The endearing child-narrator of Mockingbird, Scout, is now, in Watchman, Jean Louise, twenty-six years old, discovering that the father she admired is a member of the White Citizens' Council. The controversial Go Set a Watchman

# NKU Faculty Research, Scholarship and Creative Activity Highlights

confronts readers with a complicated portrait of the hero of *Mockingbird*. Reutter, Cullick, and their contributors offer new interpretations to address the problems that readers and teachers of Harper Lee's classic novel must resolve. Ultimately, Reutter and Cullick argue that Harper Lee's novels can give students and other readers more nuanced understandings of our nation's racial history, especially in the era of Black Lives Matter.

\* Reutter, C. and J.S. Cullick, eds. (2020) *Mockingbird Grows Up: Re-reading Harper Lee Since Watchman*. Knoxville: University of Tennessee Press.

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## **WHITNEY H. DARNELL**

Assistant Professor, Communication  
03/27/2020

[Dr. Whitney Darnell publishes article on disability accommodation discourse on the first day of class.](#)

Globally, invisible disabilities are among the most commonly reported types of disabilities among college students. International data suggest that students with disabilities in higher education are often reluctant to disclose their disability status in order to access accommodations and academic support from their institutions. Few studies have examined institutional disclosure processes that contribute to students non-disclosure decisions. The first day of class is an opportune time for instructors to invite students to disclose their accommodation eligibility. Guided by the multiple goals theoretical framework, 30 first-day-of-class videos from a large, public university in the United States, were collected and analyzed. The findings suggest that when instructors talk about accommodations for students with disabilities on the first day of class, they largely prioritize the students' task goals (e.g. completing documentation and assignments) and often avoid discussing the unique relational and identity needs of students with invisible disabilities. The implications of these findings are discussed.

\* Darnell, W.H. (2020). Observing instructors' accommodation discourse on the first day of class. *Teaching in Higher Education*.

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03/01/2020

[Dr. Whitney H. Darnell coauthors article exploring the communication tensions experienced by surgical trainees when prescribing opioids](#)

Objective: The American health care system's adoption of the patient-centered care (PCC) model has transformed how medical providers communicate with patients about prescription pain medication. Concomitantly, the nation's opioid epidemic has necessitated a proactive response from the medical profession, requiring providers who frequently dispense opioids for acute pain to exercise vigilance in monitoring and limiting outpatient prescriptions. This qualitative study explores how surgical trainees balance PCC directives, including shared decision making, exchanging information with patients, and relationship maintenance, with opioid prescribing vigilance.

# NKU Faculty Research, Scholarship and Creative Activity Highlights

Design: Investigators conducted interviews with 17 surgical residents and fellows (trainees) who routinely prescribe opioids at an academic medical center.

Results: A qualitative descriptive analysis produced four codes, which were reduced to themes depicting problematic intersections between PCC imperatives and opioid vigilance during post-operative opioid-prescribing communication:(a) sharing the decision-making process contended with exerting medical authority, (b) reciprocating information contended with negotiating opioid prescribing terms with patients, (c) maintaining symbiotic relationships contended with prescribing ethics, and (d) achieving patient satisfaction contended with safeguarding opioid medications.

\* Adams, E. T., Cohen, E. L., Bernard, A., Darnell, W.H. & Helme, D. (2020). Can opioid vigilance and patient-centered care coexist? A qualitative study of communicative tensions encountered by surgical trainees. *Journal of Opioid Management*.

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## DARIUS FATEMI

Associate Dean/Associate Professor, Accounting and Business Law  
06/01/2020

[Dr. Fatemi's research on codes of conduct is published in Financial Times Top 50 journal](#)

Professional integrity is a fundamental principle of the International Ethics Standards Board for Accountants Code of Ethics. Member organizations from around the globe are required to adopt a code no less stringent than the principles in the IESBA Code. Hence, all professional accountants are required to possess integrity as a core ethical principle. In the USA, CPAs must also adhere to the principle of client advocacy in relation to their tax clients. Despite extensive prior literature on accounting ethics, firm culture, and ethical codes, no prior research has tested whether the communication of an Integrity ethical standard actually affects practitioners' judgments and decisions. In this study, we use brief interventions to determine whether a prime of two ethical professional standards (Integrity; Advocacy) affects tax practitioners' recommendations to their clients. One implication for professionalism in tax practice is our finding that a brief intervention of professional standards can directly impact on practitioners' judgments. Most notably, a joint presentation of Advocacy and Integrity leads to contrasting results that depend on the order of the intervention. In sum, when the Integrity (Advocacy) standard was presented before the Advocacy (Integrity) standard, tax practitioners were significantly less (more) likely to choose a tax-favorable outcome. That is, the order of professional ethical standard intervention significantly affects tax practitioners' judgments.

\* Fatemi, D.J., Hasseldine, J., and Hite, P. (2020). The influence of ethical codes of conduct on professionalism in tax practice. *Journal of Business Ethics* 164 (1):133–149.

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# NKU Faculty Research, Scholarship and Creative Activity Highlights

## ANDREA GAZZANIGA

Associate Professor, English

09/20/2020

### [Dr. Gazzaniga publishes a journal article on Victorian poet Michael Field](#)

Collaborating poets Katharine Bradley and Edith Cooper, writing under the pseudonym Michael Field, challenge the solipsistic tradition of the Romantic sublime to assert a more egalitarian and communal understanding of ecstatic pleasure. This article argues that their creative and erotic partnership establishes shared experience as a central feature of sublimity and, in so doing, invites readers to reimagine the terms of transcendence in late-Victorian literature and culture.

\*Gazzaniga, Andrea. "Michael Field's Shared Sublime and Post-Romantic Transcendence." *Texas Studies in Literature and Language*, vol. 62, no. 3, 2020, pp. 316–43.

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## JUDI GODSEY

Part-Time Lecturer, Nursing

08/04/2020

### [Interdisciplinary Researchers from NKU and XU Identify Factors Contributing to the Inconsistent Brand Image of the Nursing Profession](#)

Nurses have been overlooked as autonomous healthcare providers due to an inaccurate image which projects them as caring and trusted, yet lacking in influence and autonomy. It is important for nurses to understand the image their profession wishes to convey, how the image falls short, and what can be done to improve it. This study examined Registered Nurse perceptions (n = 286) of factors influencing nursing's inconsistent brand image. Qualitative data were thematically coded, analyzed, and grouped into eight influencing factors: Variety of education/credentials, image not a priority, lack of leadership development, lack of professionalism, portrayals in the media and online, patients' personal experiences, treatment by other professional colleagues, and gender role assumptions. This study suggests that nursing has a unique opportunity to pursue aggressively targeted scholarship which could identify and communicate a long overdue consistent brand position that is positive, relevant, accurate, and distinctive from other professions. A strong brand image could dispel outdated and inaccurate views while communicating new visionary leadership which aligns with priorities for the nursing profession.

\*Godsey, J., Houghton, D., & Hayes, T. (2020). Registered Nurse perceptions of factors contributing to the inconsistent brand image of the nursing profession. *Nursing Outlook*, in press: August, 2020. <https://doi.org/10.1016/j.outlook.2020.06.005>

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# NKU Faculty Research, Scholarship and Creative Activity Highlights

## ALLYSON GRAF

Assistant Professor, Psychological Science  
08/18/2020

### [Age Moderates Perceived COVID-19 Disruption on Well-being - Dr. Graf co-authors manuscript on COVID-19 and stress.](#)

The current study examined the Coronavirus Disease 2019 (COVID-19) disruption on well-being throughout adulthood. Perceived stress and affect were examined in 166 community-dwelling adults (Mage=35.65; SD=15.53; range=18-79) in relation to the perceived disruption of the COVID-19 pandemic to their lives. A significant moderation was found for age and COVID-19 disruption on perceived stress [ $F(5, 153) = 8.88, p < .05, R^2 = .22$ ] and negative affect [ $F(5, 154) = 4.91, p < .05, R^2 = .14$ ], but not for positive affect. For participants over 50, those who rated COVID-19 as a low or high disruption had similar scores on stress and negative affect, but with younger aged participants, perceiving high disruption corresponded with higher levels of stress and negative affect. Findings are consistent with the strength and vulnerability integration (SAVI) model, wherein older adults try to maintain positive emotional well-being; with middle-aged and older adults in the current study having experienced less negative impact on well-being. Middle-aged and older adults may be better able to regulate negative emotions, from COVID-19, than younger adults. SAVI proposes a greater negative impact on older adults when they experience sustained stressors; as the challenges with COVID-19 continue, further data will need to be examined.

\* Knepple Carney, A., Graf, A. S., Hudson, G., & Wilson, E. (2020). Age moderates perceived COVID-19 disruption on well-being. *The Gerontologist*. Advanced online publication.

## C. COLLIN HERB

Assistant Professor, School of Kinesiology, Counseling and Rehabilitative Science  
01/23/2020

### [Dr. Herb published research on biomechanics of patients with ankle instability](#)

Chronic ankle instability (CAI) has been associated with biomechanical alterations during landing. While joint coupling differences have been reported during gait in patients with CAI, there is no known research assessing joint coupling during a drop-vertical jumping (DVJ). Joint coupling variability measure may provide information on the sensorimotor health of these patients. The purpose of this study was to compare lower extremity joint coupling variability during a DVJ between patients with CAI and controls. Twenty-eight young, active individuals (CAI:n = 14, Control:n = 14) participated. A 3D motion capture system was used to collect kinematics during 15 drop-vertical jump trials. A vector coding analysis was used to assess the variability in the following joint couples: knee sagittal-ankle frontal, knee sagittal-ankle sagittal, hip frontal-ankle frontal, and hip frontal-ankle sagittal. The CAI group had higher joint coupling variability in hip frontal-ankle sagittal, knee sagittal-ankle frontal and knee sagittal-ankle sagittal planes both prior to

# NKU Faculty Research, Scholarship and Creative Activity Highlights

and following ground contact during the drop vertical jumps. These changes indicate potential adaptations to the constraint of CAI and the task of the DVJ. Higher variability may reflect an attempt by the subjects to explore alternate movement strategies or reflect poor sensorimotor control strategies. Clinicians should consider the challenges of DVJ during rehabilitation as they create a unique task constraints.

\* Herb, C. C., Blemker, S., Saliba, S., Hart, J., & Hertel, J. (2020). Chronic ankle instability patients exhibit higher variability in lower extremity joint-coupling variability during drop vertical jumps. *Journal of Biomechanics*, 99, 109479.

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## KAJSA LARSON

Associate Professor, World Languages and Literatures  
08/25/2020

### [High Impact Practices Through Experiential Student Philanthropy: A Case Study of the Mayerson Student Philanthropy Project and Academic Success at Northern Kentucky University](#)

High impact educational practices are active learning strategies that benefit learning outcomes, increase student engagement, and support student retention. This study examines the retention and persistence impact of student philanthropy, an active learning approach that engages students with the community by incorporating a philanthropy component into college courses. Results from this study demonstrate that students who participated in one or more student philanthropy courses had a substantially higher four-year graduation rate in comparison to students overall. Participants also exhibited a greater number of completed credit hours compared to the general university population and a higher semester-to-semester retention rate. This affirms the value of student philanthropy as a High Impact Teaching Practice (HITP) that actively engages students inside and outside of the classroom, around the university campus, and in the community.

\* Larson, K., Downing, M., Nolan, J., Neikirk, M. (2020). High Impact Practices Through Experiential Student Philanthropy: A Case Study of the Mayerson Student Philanthropy Project and Academic Success at Northern Kentucky University. *Journal of College Student Retention: Research, Theory & Practice*, 0(0) 1-24. <https://doi.org/10.1177/1521025120952083>

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## MICHAEL MANNHEIMER

Professor, Chase College of Law  
05/01/2020

### [Vagueness as Impossibility - Mannheim Publishes Article on the "Void for Vagueness" Doctrine](#)

The void-for-vagueness doctrine dictates that unduly vague penal statutes will be voided based on due process principles, for two reasons. First, vague penal statutes fail to inform the ordinary person of what is proscribed. Second, vague penal statutes violate separation-of-powers and rule-of-law principles inherent in due process by delegating legislative authority to other actors in the



# NKU Faculty Research, Scholarship and Creative Activity Highlights

criminal justice system: police, prosecutors, judges, and juries. Justice Thomas has recently called into question the constitutional legitimacy of the void-for-vagueness doctrine. In addition, the Supreme Court has failed to provide an intelligible standard for identifying unconstitutionally vague statutes. Moreover, the Court arbitrarily deems vague laws unconstitutional when many nonvague statutes also fail to provide notice for potential wrongdoers and delegate excessive legislative power to courts and prosecutors. Furthermore, the Court's jurisprudence permits courts and executive agencies to save otherwise vague statutes through limiting constructions, even though excessive delegation to those institutions is one of the purported evils of vague statutes. Both clarity and constitutional legitimacy can be infused into this area by shedding the rhetoric of vagueness and instead thinking of the problem as impossibility of compliance. A basic element of due process recognized by Lord Edward Coke over four centuries ago is that the law cannot compel the impossible. The statutes that the Supreme Court has declared vague generally share one of two defects: they require an actor to conform his conduct either to unknowable objective facts or to unascertainable normative standards. Such statutes essentially require that persons perform the impossible.

\* Vagueness as Impossibility, 98 TEX. L. REV. 1049 (2020)

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06/30/2020

## [Eighth Amendment Federalism - Mannheimer Publishes Chapter in New Eighth Amendment Book](#)

Scholars of the Cruel and Unusual Punishments Clause of the Eighth Amendment have overlooked a central value of the Clause: federalism. The Clause can be understood only by recognizing that the framers and ratifiers of the Bill of Rights understood individual rights and federalism to be intertwined. Because the States were the guardians of the common-law rights of Englishmen, the framers and ratifiers sought to secure individual rights against the federal government by tying many of the constraints on that government to state norms. These rights would "float" on a body of underlying state law, rising when state law provided greater protections, diminishing when state law provided fewer protections. Thus, federal rights would change in content across borders and over time. This interpretation of the Clause provides an accommodation between originalism and living constitutionalism. We should consider ourselves bound by the framers' and ratifiers' understanding of the Eighth Amendment, but that understanding itself was that the Clause would not be interpreted in a static manner. Instead, the framers and ratifiers understood that the content of the Clause would change over time. But their understanding was not akin to the free form "evolving standards of decency" approach that the Court has adopted. Instead, their understanding was that constraints on the federal government's power to punish would evolve only when, and only to the extent that, the people, through their representatives in the state legislatures and judiciaries, changed their views on the outer bounds of the state's power to punish.

\*"Eighth Amendment Federalism," in THE EIGHTH AMENDMENT AND ITS FUTURE IN A NEW AGE OF PUNISHMENT (William Berry & Meghan Ryan, eds) (Cambridge U. Press 2020)

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## MELISSA MOON

Associate Professor, Political Science, Criminal Justice & Organizational Leadership

05/03/2020

# NKU Faculty Research, Scholarship and Creative Activity Highlights

## [Are active shooter protocols in schools scaring kids?](#)

Debates concerning active assailant protocols across American schools have grown in size and contention. While both sides of this debate have the safety and well-being of our nation's youth at heart, they are often only able to support their position with anecdotal evidence. This project seeks to bring science to the conversation and add to the limited amount of empirical research on the topic by assessing both the negative and positive psychological impacts of one multi-option based approach, ALICE, among a sample of 4th-12th grade students. Implemented through classroom, discussion-based exercises, the analyses reveal that students are generally no more fearful of ALICE than other crisis/emergency preparedness practices, particularly tornado drills and Stranger Danger discussions. Additionally, over 85% of students indicate learning about ALICE either did not change how they felt or made them feel more pre-pared, confident, or safe compared to approximately 1 in 10 students experiencing a negative psychological outcome. Consistent through-out the study, students reporting they were fearful of other crisis/emergency preparedness practices experienced more negative and less positive psychological outcomes after learning about ALICE. The study closes with potential policy implications on how to prepare, and not scare, students for the unthinkable.

\* Jonson, Cheryl Lero, Moon, Melissa M. and Gialopsos, Brooke M. (2020). Are Students Scared or Prepared? Psychological Impacts of a Multi-Option Active Assailant Protocol Compared to Other Crisis/Emergency Preparedness Practices. Victims & Offenders, Advanced online publication, DOI: 10.1080/15564886.2020.1753871

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## JESSICA STREIT

Lecturer, Psychological Science

09/15/2020

### [Teaching in the Time of COVID-19 - Dr. Streit publishes survey of K-12 educators about COVID-19](#)

In August of 2020, a large-scale survey of 1,876 primary and secondary educators in the United States documented educators' concerns going into the 2020-2021 school year. Results suggest that many K-12 educators feel dissatisfied and ill-equipped to handle the 2020-2021 school year in the wake of COVID-19. What's more, respondents do not trust district leadership to make informed, effective decisions regarding health and safety protocols as they return for the 2020-2021 school year. To this end, educators are already reporting poor mental and physical health as they enter the school year. These health effects include concerning levels of stress due to the COVID-19 pandemic and management of the return-to-work process. At the same time, the survey results also point to districtwide opportunities to better support educators moving forward.

\* Matthews, R. A., Streit, J. M. K., & Smith, C.E. (2020). Teaching in the time of COVID-19: Executive Summary. The University of Alabama Culverhouse College of Business Department of Management.

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## JAMES WALDEN

Professor, Computer Science

# NKU Faculty Research, Scholarship and Creative Activity Highlights

06/30/2020

## [Dr. Walden's OpenSSL paper wins Free and Open Source Software Impact award](#)

When the Heartbleed vulnerability in the OpenSSL software library made international news in 2014, it revealed how dependent the Internet is on open source infrastructure software that runs underneath the graphical interfaces we use. OpenSSL provides cryptographic functions that are necessary for the security for every login and purchase web page. While the purpose of OpenSSL is to improve security, the Heartbleed vulnerability inside the software allowed hackers to read secrets like passwords from the memory of computers using OpenSSL. In 2014, OpenSSL was used on over a billion Android devices and on about half of the top 100 most popular web sites. We analyzed how the Heartbleed vulnerability changed the software evolution of OpenSSL using a mixed methods approach, collecting multiple types of quantitative data and qualitative data from software repositories and web sites associated with the project. We found that the OpenSSL project made tremendous improvements in project activity, code quality, and security after Heartbleed. By the end of 2016, the number of code commits per month had tripled, 91 security vulnerabilities were found and fixed, and source code complexity decreased significantly. The OpenSSL project also obtained a best practices badge that year from the Linux Foundation, certifying its use of good open source development practices. Two independent code reviews of OpenSSL in 2016 and 2020 found few security vulnerabilities, which were fixed before release.

\* Walden J. (2020). The Impact of a Major Security Event on an Open Source Project: The Case of OpenSSL. In 2020 IEEE/ACM 16th International Conference on Mining Software Repositories (MSR).

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## JUSTIN YATES

Associate Professor, Psychological Science

09/16/2020

## [Differential effects of glutamate N-methyl-D-aspartate receptor antagonists on risky choice as assessed in the risky decision task - Dr. Yates and his students publish journal article on the neural mechanisms of risky decision making in rats.](#)

Risky choice can be measured using the risky decision task (RDT). In the RDT, animals choose between a large, risky option that is paired with probabilistic foot shock and a small, safe option that is never paired with shock. To date, studies examining the neurochemical basis of decision-making in the RDT have focused primarily on the dopaminergic system but have not focused on the glutamatergic system, which has been implicated in risky decision-making. Because glutamate is known to play a critical role in decision-making, we wanted to determine the contribution of the glutamatergic system to performance in the RDT. In the experiment, 32 rats (16 male; 16 female) were tested in the RDT. The probability of receiving a foot shock increased across the session (ascending schedule) for half of the rats but decreased across the session (descending schedule) for half of the rats. Following training, rats received injections of the N-methyl-D-aspartate (NMDA) receptor competitive antagonist CGS 19755 (0, 1.0, 2.5, 5.0 mg/kg; s.c.) and the GluN2B-selective antagonist Ro 63-1908 (0, 0.1, 0.3, 1.0 mg/kg; s.c.). CGS 19755 (2.5 and 5.0 mg/kg) increased risky choice in males and females trained on the ascending schedule. Ro 63-1908 (1.0 mg/kg) decreased risky choice, but only in male

# NKU Faculty Research, Scholarship and Creative Activity Highlights

rats trained on the ascending schedule. The current results show that NMDA receptors are an important mediator of decision-making involving probabilistic delivery of positive punishment.

\* Yates, J. R., Horchar, M. J., Ellis, A. L., Kappesser, J. L., Mbambu, P., Sutphin, T. G., Dehner, D. S., Igwe, H. O., & Wright, M. R. (in press). Differential effects of glutamate N-methyl-D-aspartate receptor antagonists on risky choice as assessed in the risky decision task. *Psychopharmacology*. <https://doi.org/10.1007/s00213-020-05664-z>

## Research/Creative/Scholarship News and Events

### PHILIP MCCARTNEY

Associate Professor, Mathematics and Statistics

[Dr. Phil McCartney was recently selected to a five year term as Associate Editor of \*Crux Mathematicorum\*, published by the Canadian Mathematical Society.](#)

Crux Mathematicorum (CRUX) is an internationally respected source of unique and challenging mathematical problems published by the CMS. Designed primarily for the secondary and undergraduate levels, and also containing some pre-secondary material, it has been referred to as “the best problem solving journal in the world”. All the problems and solutions are fully peer-reviewed for clarity, completeness and rigor by academic and professional mathematicians. Crux includes an “Olympiad Corner” which is particularly helpful for students preparing for math competitions.

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### JOSEPH MESTER, ALAN COHEN, PATRICK HARE

Biological Sciences, Biochemistry and Chemistry

[Recent publication in PLOS ONE journal](#)

Microbiology research data from Colin Hartman, a recent graduate in Biological Sciences, was published on September 11 in PLOS ONE, a widely-read scientific journal. The article, titled, "Novel inactivation of the causative fungal pathogen of white-nose syndrome with methoxsalen plus ultraviolet A or B radiation", describes a newly developed method for controlling a fungus that can be deadly for bat species. A combined treatment involving ultraviolet A (UVA) or B (UVB) light in with methoxsalen, a photosensitizer from the furanocoumarin family of compounds, was shown to have powerful anti-fungal effects against *Pseudogymnoascus destructans*. The article details the range of anti-fungal effects that were seen in laboratory experiments and describes how the treatment may be applied to bats and their environment. Emerging fungal diseases, like white-nose syndrome, pose alarming threats to human and

# NKU Faculty Research, Scholarship and Creative Activity Highlights

animal health, food security, and ecosystem stability. This novel combination of UVA or UVB plus methoxsalen may be applicable to other fungal diseases, for which current interventions are limited or unavailable.

## **Do you have research, scholarship or creative activity to share?**

Use this link to submit for the next edition:

[https://nku.co1.qualtrics.com/jfe/form/SV\\_b4qA1B6xPEqA50h](https://nku.co1.qualtrics.com/jfe/form/SV_b4qA1B6xPEqA50h)

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