Fall 2015 Honors Capstone Abstracts

Conversation in Ecuador: An Ethnographic Investigation of Awareness and Attitudes Towards Oil Drilling and Conservation
Julia Steffen
Kajsa Larson
Since Ecuador’s president, Rafael Correa, lifted bans on oil drilling in the pristine Yasuní National Park of the Amazon, oil drilling has expanded in this biologically diverse region. During a month-long study abroad trip to Ecuador, I distributed conservation related surveys and conducted on-site interviews with Ecuadorians categorized in three groups: urban dwellers, those living in a rural setting, and indigenous populations. The purpose was to explore and compare citizens’ awareness and opinions towards oil drilling and conservation, based upon their residency. The findings indicated that a citizen’s area of permanent residence did not necessarily impact the individual’s awareness of the topic. Indigenous peoples were opposed to oil drilling and were concerned with preserving their resources, lifestyles, and homes. There was not a noticeable difference in the opinions of urban and rural dwellers, however, as most showed general awareness and opposition to oil drilling. Instead, I concluded that a complex series of sub-concerns, including an individual’s career, travel opportunities, education, transportation needs, and use of free time, provides a better indication of personal awareness of conservation and oil drilling in Ecuador.

Museums in Global Context and their Future in Society
Cory Whitworth
Judy Voelker
My capstone project for the Northern Kentucky University Honors Program was titled Museums in a Global Context and their Future in Society. This featured multiple parts, including an academic paper and an internship at the NKU Anthropology Museum. This capstone was an excellent example of how the Honors Program provides opportunities where students can explore interdisciplinary topics that are important to them. Within my academic paper I discussed technology, education, and other subjects that relate to museum work. Then I utilized this knowledge when I worked with Dr. Voelker at the NKU Anthropology Museum this previous semester. One of the objectives of this capstone is to gain skills that could be used throughout my professional life. I completed a social media report, which we had decided would be ideal for my capstone because social media is influential in today’s society and having this experience would be beneficial for other companies and organizations. Having experience with working with volunteers is another marketable skill that will help me be successful after NKU. Dr. Voelker was an excellent mentor to work with and it has been a great year completing my honors Capstone.

The History and Process of Creating an Animated Feature
Ashley Seibert
Renee Human
Animation is something that has touched each and every one of us at one point in our lives, whether that be through the cartoons we watched growing up, special effects in movies, or simple text animations on commercials. Animation has been around for over 100 years and has changed drastically over that time. With new technologies being developed every day the industry continues to come up with new ways to create and render animated sequences, but what does it take to create an animated feature? Is there a difference in the process of 2D and 3D animation? What caused the shift from 2D to 3D? What is the future of animation?
Is Chewing Gum Harming Our Environment?
Brittany Schneider

Rodney D’Souza
My Honors Capstone project titled, Is Chewing Gum Harming Our Environment?, was an excellent way for me to spend most of my Junior and Senior years at Northern Kentucky University. With the added value of professor, Rodney D’Souza (Director), and Zac Strobl (Program Manager) of the Center for Innovation and Entrepreneurship, I was able to take The Lean Startup process and successfully apply it to my final project. The first step in idea validation is creating a hypothesis, then researching and testing the idea, and finally pivoting or validating based on the findings of the research. Behind it all, passion and entrepreneurial spirit can provide the stamina to survive the infinite number of pivots that may occur along the way.

My final project culminated with the creation of an awareness campaign on NKU’s campus, where students and faculty were informed of the costly issue of littered chewing gum. We hope to continue our awareness efforts on and off campus in order to help keep our region a beautiful place for everyone to visit and live.

Huntington's Disease: Increasing Hope through Education
Brittany Butler

Erin Robinson
Huntington’s disease is a rare, progressive brain disorder that causes uncontrolled movements, emotional problems, and loss of cognition. Individuals with Huntington's disease usually live about 15 to 20 years after signs and symptoms begin. Currently, there is no known cure for this disease ("Huntington's disease", 2013). It is necessary for nurses to understand the disease process to provide the best patient care possible. This study assesses the knowledge nurses have on Huntington’s disease. Two convenient samples of nurses from a local nursing home and the Department of Nursing at Northern Kentucky University were used in this study. Each sample was given a pre-survey which included demographic questions and multiple choice questions about Huntington’s disease. They were given a short educational presentation on the disease. After the presentation, they completed a post-survey with the same questions as the pre-survey. Before the presentation, the mean score for both populations of nurses was 63.64%. After the presentation, the mean score for both populations of nurses was 78.45%. There is strong statistical evidence that the mean% correct would be larger after the educational intervention than before for nurses in these areas. With a 95% level of confidence, the mean% correct would improve between 9.96% and 19.84% after the educational intervention.

Huntington’s disease is a very complex disease that affects multiple body systems. It is imperative that nurses understand this before caring for a patient with Huntington's disease. The study proved that an educational intervention would be helpful in the continued education of nurses. This study could lead to an educational in-service for nurses in the future. This could also lead to the development of a CEU about Huntington's disease.

The Business and Culture of an Ice Cream Shop: Research and Reflections from Germany and The United States
Tina Spratt

Ali Raiser Godel
This photo exhibition gives a visual tour through ice cream shops in the Tristate area and Germany. Each photo is paired with captions taken from ethnographic research developed after visiting each shop. This gives viewers the opportunity to draw conclusions concerning the source of differences present between countries. In general, this exhibition illustrates a business that is taken for granted and the cultural implications of business models throughout different countries. By illustrating these differences
visually, viewers are able to see what I observed while visiting each shop. Illuminating these differences allows the viewer to examine setups of ice cream shops and the multiple cultural differences that affect shop setup. Future work in this area could shed light on disparities in sales, foot traffic, and revenue depending on the business model employed in each country.

**Mobile Application: Bubble Assassin**
Justin Hill  
*Christopher Rider*

Making a mobile application consists of a lot more work than it may seem. Making a game, I believe is a bit more complicated of a process. First, you have to come up with the game idea. What should the game look like? How are you going to keep your users entertained and want to come back for more? After coming up with the idea, you have to find a way to implement it with programming. This is the part that was easy for me. After the game is completed, you now have to market it. Simply putting it on the app store won’t suffice. I made a brand and advertised the app on multiple platforms.

Programming, graphics, marketing, and multiple other disciplines were combined to create a great game for consumers.

**Walking vs. Vinegar: Comparing Methods for Controlling Post-Prandial Blood Sugar in Type II and Prediabetics**
Brady Holmer  
*Cory Scheadler*

Recently, society has seen a large increase in diseases related to high blood sugar levels, such as insulin resistance and type II diabetes. Currently, 29.3 million Americans suffer from some form of diabetes, and this number is growing; each year 1.7 million new cases of diabetes are diagnosed and the rapid increase of new cases is indicative of an epidemic. This has implications for health care costs and quality of life in society, as diabetes is also linked to cardiovascular, neurological and metabolic diseases. Overweight and obese individuals make up the majority of type II diabetics, suggesting the disease may be seen as preventable and treatable.

Many methods for controlling diabetic blood sugar levels have been proposed and tested. Of the many methods, aerobic exercise has proven to be effective in helping diabetic patients control their blood sugar levels; and walking is the preferred method of exercise among elderly diabetics. Vinegar has been less studied in its use as an alternative treatment to elevated blood sugar, however, it has been accepted by many as a valid lifestyle modification. This study sought to investigate and compare how self-paced walking and vinegar would lower post-meal blood glucose levels in diabetic and pre-diabetic patients. Implications include discovering possible lifestyle modifications to be used by elderly diabetic patients to manage their disease.

**It Matters What You Say: The Effects of Stigmatizing Language on Attitudes Toward Heroin Use and Harm Reduction**
Stefanie Kozlowski  
*Perilou Goddard*

Heroin use disorder is highly stigmatized but more prevalent than ever in our region, and practices that could reduce heroin-related harm (e.g., syringe services programs) face frequent opposition. Stigmatizing attitudes may stem in part from the language used when discussing heroin use and harm reduction programs. We conducted a study with 201 undergraduate students to test the effects of stigmatizing language on attitudes toward harm reduction and people who use heroin. Participants were randomly assigned to read one of two heroin recovery stories or a control story about recovery from an injury. The language used in the two heroin recovery stories was either stigmatizing (e.g., heroin addict)
or less stigmatizing (e.g., person with a heroin use disorder). Participants completed measures of attitudes toward people who use heroin, overdose prevention, syringe service programs, and medication-assisted treatment, as well as dispositional measures of social value orientation, empathy, perceived dangerousness, and essentialism. Our primary hypothesis was not confirmed; there were no significant attitude differences between the two heroin descriptions. However, compared with the control condition, participants in both heroin conditions exhibited significantly more positive attitudes toward people who use heroin and medication-assisted treatment, indicating that an optimistic heroin recovery story has a positive significant impact on some heroin-related attitudes.

Creativity in the Classroom: The Importance of Arts Integration
Emma Lawson
Lisa Jameson
This project explored the benefits of integrating the arts into elementary classrooms. This allows students to do something creative with the content they have learned and construct a deeper understanding of it instead of simply recalling the information. I learned about how to use the arts to teach core subjects, and how they help students become more creative, build problem-solving skills, and become more engaged. Arts integration makes learning fun and interesting, and gives students a chance to use their imaginations. I applied what I was learning to a real-world context by teaching arts-integrated lessons each week to students at the Boys and Girls Club, and I was able to create a collection of lessons that I can use in my future as a teacher.

I'm Becoming My Parents: A Documentary Film
Clay Mahagan
Sarah Drabik
“I'm Becoming My Parents” is a documentary film that asks the question “Why am I becoming my parents?” and searches for the answer. Children have begrudgingly realized their transformation into their parents for ages, but the film finally tries to find out why. The film is stylized as a channel surfing adventure featuring skits parodying television shows that illustrate the experience of growing into adulthood and the parental-like baggage that goes along with it. Skits such as “Antiques Jokeshow”, parodying the PBS classic Antiques Roadshow, poke fun at the phenomenon and personal experiences from the filmmaker. Interviews round out the film, featuring both parents and their children. Scientific professionals are also interviewed to gain insight into the biological reasons that this happens. The film in inconclusive, but instead asks the audience to reflect and decide if it is truly important to worry why they are the way they are.

Measuring the Impact of Alterations in Branched-Chain Amino Acid Availability on Genome Stability in Saccharomyces Cerevisiae
Taylor Strohmaier
Erin Strome
Previously, mutations in genes involved in branched-chain amino acid availability were identified to impact genome stability. For this project, our goal is to identify the full spectrum of genes, within the biosynthetic and transport pathways, resulting in increases in chromosome loss when mutated. Our first goal was the creation of heterozygous deletion strains and analysis for chromosome dynamics utilizing both sectoring and fluctuation assays. Next, genes of interest were chosen for the creation of homozygous deletion strains. The stability of those strains’ genomes was then tested using the same stability assays. Current research involves continued testing of the full dosage sensitivity of the genes of interest.
Growing the Market for Granny's Garden
Nicole Hudson
Aron Levin

Founded in 2002, Granny’s Garden School has strived to teach a variety of disciplines through hands on work in the gardens they create. In recent years, they have brought back a Fall Harvest Festival in which they aim to grow community involvement and raise money for the program. Marketing research was able to identify Granny’s Garden’s audience, perceptions, and overall opinions. This led to the ability to create recommendations for the Fall Harvest Festival that targeted a younger audience, primarily older Millennials and Generation X, while also providing recommendations in terms of how the Fall Harvest Festival should be marketed. After the Fall Harvest Festival, additional research was conducted to better understand if the recommendations worked and to gain further insights into participants’ experiences at the Fall Harvest Festival. In the end, Granny’s Garden School will be able to use the research to continue to grow the program, even beyond the Fall Harvest Festival.

Usable and Secure Web Development
Tyler Roth
Charles Frank

My capstone project involved research into secure and usable web development. To aid in my research and to give me a project that will further aid my research I built a clinical research online training application. In this application I addressed the issues of usability and security to demonstrate my knowledge of the subject of which I was researching. The web app that I have developed is at this url researchresources.org/training/register.php. There is currently more development that is needed to be done before this web application is complete but it has come a very far way since a year of work and I believe this has strong potential. My client will be charging for this training as well so this product is a real world product with economic value.

Teaching Two Ways
Julia Gamble
Barclay Green

This project explores what it means to be a teacher in the modern world in regards to the policies and national standards that are present in school districts today. Through an in depth research paper on the Common Core State Standards, a cohesive understanding of the challenges and benefits of the national program were weighed. Through a two semester immersive experience, two units of study were crafted for a more hands on approach that pitted “free-form” teaching and teaching by the Core against one another. A cumulative reflection tied all three pieces together making connections about adapting to policies while maintaining creativity and autonomy as a teacher in the classroom.

Crooked Wood: Death in Creative Writing
Tanner Elrod
Stephen Leigh

Inspired by a photography series by Ed James, I wanted to create deaths that were focused around a single object. In his series, he calls them the murder weapons. However, not all of my deaths are considered murders. I want the characters to drive the story, but I also wanted to subtly attach an object to each character. In First Drafts, The Author is linked to a pair of high-heeled shoes. I believe that this celebrates the idea that, while the characters are what create these stories, these small objects are what inspired the narratives in the beginning. I wanted to find “everyday objects” and show how these things we use in our daily lives have the capability to change the lives around us, if used in the right way and by the right person.
Technique Development for the Proper Display of the Different Regions of the Accumulated Associated Protein in Relation to Biofilm Formation
Emily Kappes
Diana McGill

*Staphylococcus epidermidis*, an often non-pathogenic bacteria found on skin and nasal passages, can form a slime-like matrix, called a biofilm, on surfaces such as surgical implantations and catheters. Biofilms are responsible for significant numbers of hospital associated infections each year. The Accumulated Associated Protein (Aap), responsible for biofilm formation, contains three distinct structural regions: B-repeat, αβ, and A-repeat (Arpt). This study focused on developing techniques to characterize the size of purified samples of the αβ and Arpt regions. By characterizing Arpt, preventative treatments for biofilms may be developed. However, it is difficult to study Arpt since it is an intrinsically disordered protein (IDP), meaning that its highly negative structure interferes with standard protein analysis techniques. For this project, SDS-Polyacrylamide Gel Electrophoresis (SDS-PAGE) with varying acrylamide percentages was used to study the anomalous migration behavior exhibited by Arpt. Additionally, another technique, CTAB-PAGE, was also explored since this technique had been developed for other IDPs. Throughout this project, I progressed as an undergraduate researcher and as an Honors student by taking the initiative to pursue a scientific question and by applying my knowledge beyond the realm of academics.

The Colorful Spirits of Japanese Folklore
Megan Beckerich
Makoto Nakamura

This project was comprised of a translation of a folktale never translated into English before, “The Blue Will O’Wisp of Resentment,” followed by research into the field of Japanese folklore. As I made progress in my research, I began to reevaluate “the Will O’Wisp” in relation to common themes in Japanese literature, and I finished a reflection and short analysis of the translation in both English and Japanese. After that, I began writing a research paper on the use of folklore in Japan. The paper serves as both an introduction to Japanese folktales and their history, and as a closer study on stories like “The Will O’Wisp.” I looked more at stories that shared common themes, and originated from the same time period (Edo period: 1603-1868). The research concludes with the continued application of folklore in modern society through popular culture and urban legends, and how ultimately, folklore can be used as a tool to study the history, language, beliefs, and identity of a group of people.

A Comparison of Security in PHP and Java Application Servers
Matthew Beckerich
James Walden

We asked ourselves “What is the state of security among the most popular web server software?” and decided to use internet wide scans of server to determine the answer to that question. More specifically we focused on whether server side code developed in PHP or Java was more secure. To make our decision we examined the problem in a few perspectives. First we looked at how much they were used in the world and determined they were in use quite widely in the ipv4 space. Second we examined their vulnerabilities. Both had many vulnerabilities, many of which ended up being ranked as highly dangerous, with java’s state being highly split depending upon what application server was being examined. Lastly we checked for patching policies, which are attempts to fix the vulnerabilities. Here we determined PHP had an advantage due to its developers releasing the updates periodically as opposed to the highly variable releases of java. In the end, however, what we determined was that the systems themselves are fairly comparable and the major difference comes from how it is managed.