

4th Annual Concordia University, Nebraska Research Symposium April 15, 2014

Presentation Schedule

2:40-3:00

TLEC 111: Trey Farmer and Jordan Donohoue – *Serotonylation of Proteins during Zebrafish Development*. Serotonylation is a transglutaminase-mediated protein modification by which serotonin is attached to glutamine residues in a protein. Although serotonin and transglutaminase function are important for development, serotonylation's role has not been explored. Here we attempt to elucidate serotonylation's role in development using zebrafish embryos, Western analysis, and transglutaminase assays.

TLEC 113: Garrett Golke – *The Potential Effects of a Keystone Pipeline Leak on Local Rivers*. With people debating the proposed construction of the Keystone XL Pipeline across Nebraska this study examines the potential effects that an oil spill on the existing Keystone Pipeline would have on local rivers and property owners using Esri's water resources application, Arc Hydro.

TLEC 102: Lara Bergdolt & Josh Allwardt - *Transglutaminase-Mediated Serotonylation of Plant Proteins*. Serotonylation is the transglutaminase-mediated covalent linkage of the monoamine serotonin to proteins. While serotonin and transglutaminase activity are important to plant function, Serotonylation has not been studied in plants. We investigated the process of serotonylation in Arabidopsis, rice, broccoli, corn, and tomato using Western analysis and transglutaminase assays.

TLEC 104: Ruthie Krc – *A GIS Analysis of National Park Visitation*. In 2011, there were over 278 million total visitors across the 398 sites in the National Park Service system. This project analyzes visitation in 57 of the National Parks from 1950 to 2013. National Park visitation is also analyzed in relation to select geographic variables.

3:10-3:30

TLEC 111: Zach Pilfold - *Health care: Caregiver Burden Alleviation & Suggestions based on Socioemotional Selectivity Theory, Diathesis-Stress Relationship Theory, and Ethnic Disparities*. Alleviating burdens through a minimum age requirement, enforcing stress relieving activities within health organization(s), and making sure client to patient pairing(s) are done in an ethnically competent way; will lead to greater patient satisfaction and a healthier caregiver role within the healthcare system.

TLEC 113: Delilah Kond & Cassie Starks – *Distribution of Tardigrade Species across Different Substrates in Nebraska*. Tardigrades are microscopic invertebrates that are undocumented in Nebraska. To discover more about the phylum Tardigrada, we collected samples to determine the distribution of species across different substrates including lichens on trees and headstones, and mosses on trees and logs. Tardigrade diversity between substrates were analyzed and compared.

TLEC 102: Joel Marquardt - *The Effects of Individual Bible Study Method on Daily Time Spent Reading the Bible*. Regular Bible study practices have been shown to foster faith development (Choi 2012). The researcher sought to compare the effects of directed and self-directed Bible study methods on an individual's Bible study habits and found that self-directed study encouraged more time spent reading the Bible daily among church-going Nebraskan adults.

TLEC 104: Austin Mogg - Tardigrades, once unknown in the state of Nebraska, are microscopic organisms living in lichen and mosses on trees. They have been called the toughest organisms on earth. I analyzed tardigrade distribution and density in relation to habitat height and compass orientation on trees.

3:40-4:00

TLEC 111: Andy Hammes - Tardigrades are lymnoaquatic microinvertebrate extremophiles. Despite extensive research into tardigrades survival, little research has been done on saline survivability. I studied tardigrades survival via tun formation in a range of saline solutions in an attempt to determine survivorship of a species of tardigrades in different salinities.

TLEC 113: Terria Schepler - *An Investigation of Residential Demographic Influence on Life-Satisfaction*. The purpose of this study is to examine the effect of one's residential demographic on life-satisfaction. This study was conducted by a public survey, made through Survey Monkey, available to all college students through social media. The survey asked the participant for the size of town that the participant has lived most of their life, and the size of town that their college/university is located in. Following these questions were statements relating to life-satisfaction that were rated on a 4-point scale; one meant absolutely not satisfied, two meant somewhat not satisfied, three meant somewhat satisfied, and four meant satisfied. The ratings were calculated to determine the total life-satisfaction score of the participant. The participants' scores were analyzed amongst others from their own residential demographic and then compared to the remaining residential demographics present in this study by means of a t-test.

TLEC 102: Brandon Rehm – *An Expanded View of the Self-Fulfilling Prophecy*. One morning in 1968, Jane Elliot sought to teach her students what it was like to be discriminated against as a member of a minority by dividing them into two groups, thus creating the blue eyed/brown eyed exercise. This event has become one of the most famous examples of the self-fulfilling prophecy, however a fresh look at this exercise reveals many aspects of the self-fulfilling prophecy that have been, until recently, overlooked.

TLEC 104: Bradley Schick – *Tardigrades of Nebraska National Forest at Halsey, Nebraska*. Tardigrades are microinvertebrates inhabiting lichens, moss, and streams and are undocumented in Nebraska. Twenty-six samples from Nebraska National Forest at Halsey, Nebraska were analyzed to discover tardigrades that will be archived. All collected specimens document new species for the unique Sandhills environment to better understand tardigrade distribution and diversity.

TLEC Mainstreet - Poster Presentations

Allison Schieffer & Katelyn Koll – *Analysis of Breechface Impressions on Reloaded Ammunition*. Cartridge case analysis is a major investigatory aspect of forensic science. Reloaded ammunition could possibly pose problems in proper firearm identification. Our research aimed to find characteristics to distinguish initial from most recent marks left on a cartridge breechface. These distinguishing characteristics will allow for proper identification of reloaded ammunition.

Delilah Kond - *2011 Carbon Emissions, Carbon Sequestration Partnerships and Carbon Trading Markets of the United States*. The increase of carbon dioxide levels in the atmosphere is one of the main causes of global warming. This research shows the recent carbon dioxide emissions by sector and source in the United States (2011). It also displays an overview of regional carbon sequestration partnerships and carbon trading markets that aim to regulate carbon emissions.

4:10-4:30

TLEC 111: Christine Ruskamp – *Tardigrades of Indian Cave State Park*. Tardigrades are microorganisms inhabiting mosses and lichens. No known species have been documented in Nebraska. Mosses and lichen samples were collected from Indian Cave State Park in Nebraska and were analyzed and recorded. Identified species will be added to the current archive of tardigrades found.

TLEC 113: Derek Wendland – *Tardigrades of Concordia University, Nebraska*. Tardigrades are microorganisms that are known for their survival capabilities and ubiquity. I analyzed moss and lichen samples collected from a variety of tree species on the campus of Concordia University, Nebraska to determine the quantity and diversity of tardigrades in a singular location.

TLEC 102: Matthew Boylan - *An Investigation of Reactions to Interpersonal Interactions*.

The purpose of this qualitative study is to investigate reactions to viewing a video of argumentative behavior between significant others. Participants included CUNE students 18 years and older, and CUNE Faculty. Significant age groups were compared and the effects of gender have been considered.

TLEC 104: Josh Ardoin – *Survey of Serotonylation in Selected Organisms*. Using Western Blotting techniques, this study explores the neurotransmitter serotonin's interaction with transglutaminase in various organisms. Yeast, corn, radish, Brussels sprouts, and zebra fish embryos will all be tested.

TLEC 113: Lacey Smola – *Does Male House Sparrow Breast Patch Size Predict Dominance?* House sparrows live in social groups. Within house sparrow groups, there is a hierarchy among males shown by breast patch size. I banded and measured the breast patches of 15 male house sparrows to determine whether male breast patch size can predict which male is dominant.

TLEC 102: Madeline Kronau - *Investigation of the Effects of Zumba on Mood.* The purpose of this quasi-experimental study is to examine the effect of participation in Zumba on Mood. The independent variable has been identified as participation in Zumba, the dependent variable as mood. The sample used was Zumba class participants at CUNE. Zumba was found to have a statistically significant effect on mood.

TLEC 104: Carson Farr – *Microclimates of American Kestrel Nest Boxes Affected by Orientation.* The American Kestrel has experienced population declines for 30 years. Concordia University placed 46 nest boxes around Seward County. I studies orientation-specific temperature differences among nest boxes. Using temperatures recorded from boxes, I determined that the boxes are suitable for kestrel use, and that orientation affects microclimate.

TLEC 111: Megan Burma - Tardigrades are micro-invertebrates inhabiting lichen and moss and are undocumented in South Dakota. Samples taken from the Black Hills and Southern Missouri River Hills were analyzed to discover and archive tardigrades. All collected specimens document new species from the unique South Dakota environments to better understand tardigrade distribution and diversity.

TLEC 113: Amy McDaniel – *A Life of Love: Maureen Kurkowski’s Life Journey Thus Far*, is a compilation of five telephone interviews and one face to face interview that I conducted with Maureen Kurkowski. It covers the lifespan of her and some of her immediate family as well. It begins with her childhood, travels through her teen years, onto her young adulthood, middle adulthood, late adulthood (into the loss of husband), her life now—grieving the loss of her husband, and then concludes with two final chapters titled “Words from Grammy” and “Words of Wisdom.”

TLEC 102: Jenelle Hallaert – *A Study of the Effect of Art-Making on Mood.* The purpose of this study was to examine the effect of art-making on mood. Participants created unique paintings that described seven things that brought joy or happiness to their lives. As the statistical analysis has revealed, making art does improve the mood of some college students.

Special thanks to:

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