45th Annual

Student Research and Creativity Conference

Student Research and Creativity Conference

April 3, 2019

EASTERN NEW MEXICO UNIVERSITY

Explore. Experience. Excel.

Eastern New Mexico University

Student Research and Creativity Conference

2019

Conference Proceedings

Portales, New Mexico
April 2019

About the Student Research and Creativity Conference

Eastern New Mexico University's annual Student Research and Creativity Conference is designed to showcase research and creative projects being done by undergraduate and graduate students. Students present their work in professional poster/creative work display and paper/performance sessions and are judged and critiqued by an inter-disciplinary group of faculty members. Through this process, students can see how their work compares with that of other students, get feedback on their work and presentations, and practice their professional presentation skills. Students, faculty, staff and community members are invited to attend the presentations. Cash awards are presented at the evening banquet.

The Eastern New Mexico University Student Research Conference began in 1974 with a grant from the ENMU chapter of Sigma Xi, the Scientific Research Society. The first director of the conference was Dr. Ram Sharma, who held the position for 25 years. While the conference was originally for students in the sciences, later on students from all academic disciplines were eligible and encouraged to participate. A poster session was added to the conference in 2011. Creative work display and fine arts performance sessions were added for the first time in 2018, broadening the scope of the conference to include students in all majors. For the 2019 conference, 199 students made 251 presentations representing 21 different academic disciplines. 81 faculty and staff members served as judges and 48 students received cash awards.

For More Information

www.enmu.edu/srcc
www.facebook.com/ENMUSRCC

Student Research and Creativity Conference Committee
2018-2019

Dr. David Hemley, Co-Chair
Dr. Suzanne Swift, Co-Chair
Dr. Mary Ayala
Dr. Thomas Brown
Dr. Jeffery Gentry
Dr. Matthew Haney
Dr. Ivana Mali
Dr. John Montgomery
Dr. Darron Smith
Dr. Juchao Yan

with administrative assistance from
Ms. Kathi Fraze
Ms. Kathie Rolston
Ms. Barbara Senn

Special Thanks

Office of the President
Eastern New Mexico University

Office of the Vice President for Academic Affairs
Eastern New Mexico University

Office of Campus Life
Eastern New Mexico University

Sodexo Dining Services
Eastern New Mexico University

Office of Communication Services
Eastern New Mexico University

Physical Plant
Eastern New Mexico University

Inventory Control
Eastern New Mexico University

2019 Conference Judges and Room Moderators

Daniel Acheson-Brown
Elizabeth Acosta
William Andersen
Regina Aragon
Suzanne Balch-Lindsay
Jonathan Barr
Stephanie Beinlich
Gary Bond
Nicole Bougie
Adrienne Bratcher
Thomas Brown
Steven Brust
Laura Bucknell
Pattarapong Burusnukul
Edward Caffrey
Tyleen Caffrey
Corey Cole
James Constantopoulos
Karen Copple
Deborah Corbin
Kenwyn Cradock
Kelly De La Rosa
Patricia Dobson
Dhimitraq Duni
Sharon Duran
Kathy Roler Durand
Carol Erwin
Rodrigo Figueroa Obregon
Jesse Filbrun
James Finley
Jean-Marc Gandonou
Jessica Gerlach
Leslie Gill
Scott Golem
Erika Grussendorf
Lori Hancock
Christin Haney
Matthew Haney
Melissa Hardin
Alice Harshey-Bischoff
David Hemley
Scott Hendershot
Nhat Ho
Kristi Jarman
V. Scott Johnson
Crystal Jones
Roy Koepp
Kristin Kuhlmann
Chunchao Lane
Rachel Lingnau
Ivana Mali
Jesse Martin
Patrick McCreary
John Montgomery
John Olsen
Brian Pasko
Judith Piepkorn
Darren Pollock
Kimberly Potters
Michelle Schmidt
Dustin Seifert
Gregory Senn
Rick Shepardson
Erin Sherman
Darron Smith
Heather Smith
Erik Stanley
Sue Stockly
Robert Stokes
Dale Streeter
David Sweeten
Suzanne Swift
Weizhong Tian
Carolyn Tollett
Michael Vandewege
Manuel Varela
Sarah Wall
Linda Weems
Crista Wiegel
Dwayne Wilkerson
Juchao Yan

2019 Conference Schedule
Wednesday, April 3

9:00 - 11:00 a.m.	Poster session in the Campus Union Building Ballroom
9:00 - 11:00 a.m.	Creative work display session in the Campus Union Building Zia Room
1:00 - 3:00 p.m.	Paper and performance sessions in rooms across campus
6:30 p.m.	Banquet in the Campus Union Building Ballroom

2019 Conference Banquet Speakers

Dr. David Hemley, Professor of Finance

Opening Remarks

Mr. Christopher Crouch, Ph.D. Candidate in Personal Financial Planning

Texas Tech University

"Retirement Impact on Health"

Dr. David Hemley, Professor of Finance

Dr. Suzanne Swift, Professor of Communicative Disorders

Presentation of Awards

2019 Conference Award Winners

Poster and Creative Work Display Presentations

Christine Gilbertson
Advisor: Dr. John Montgomery

Klaudia Szych
Advisor: Dr. Matthew Barlow

Sara Ricklefs
Advisor: Dr. Jesse Filbrun

Pramod Acharya
Advisor: Dr. Young Cho

Xiaochan Zhang
Advisor: Dr. Juchao Yan

Haily Galindo
Advisor: Dr. Juchao Yan

Rebecca Cope
Advisor: Dr. Steven Karpowicz

Aniceto Chavez and Damilola Kunnu
Advisor: Dr. Hamid Allamehzadeh

Reagan Runyan
Advisor: Dr. Matthew Haney

Asem Aldahlawy
Advisor: Dr. Sue Stockly

William Powell
Advisor: Dr. Sue Stockly

Sarah Keppinger
Advisor: Dr. Rachel Lingnau

Jaspreet Bains
Advisor: Ms. Laura Bucknell

Melissa Wilson
Advisor: Dr. Suzanne Swift

Whitney Cordova
Advisor: Dr. Karen Copple

Jordan Stearns
Advisor: Dr. Adrienne Bratcher

Ashley Holker
Advisor: Dr. Karen Copple

Kayla Lee
Advisor: Dr. Suzanne Swift

Toni Saldana
Advisor: Dr. Karen Copple

Lauren Rodriquez
Advisor: Dr. Karen Copple

Cassidy Stradling
Advisor: Dr. Adrienne Bratcher

Kelly Tanner
Advisor: Dr. Karen Copple

Crystal Jones and Samantha Ford
Advisor: Dr. Gary Bond

Raven Lente
Advisor: Ms. Alla Parsons

Kyree Mackey and Marguerite Frechette
Advisor: Mr. Michael Rizza

Paper and Performance Presentations

Sarah Koss
Advisor: Dr. Anne Beck
Klaudia Szych
Advisor: Dr. Matthew Barlow
Jennifer Baros
Advisor: Dr. Micah Donohue
Vance Miller
Advisor: Dr. Juchao Yan
Lauren Anderson
Advisor: Dr. Omar Camarillo
Victoria Arrowsmith
Advisor: Ms. Geni Flores
Darien Sturtevant and Rio Tate
Advisor: Dr. Gary Bond
Alan Ronquillo
Advisor: Dr. David Hemley
Morgen Nations
Advisor: Dr. David Hemley
Chukwudalu Okoli
Advisor: Dr. Sue Stockly
Kaitlyn Kluna
Advisor: Dr. David Hemley
William Powell
Advisor: Dr. David Hemley
Kalin Day
Advisor: Dr. Suzanne Swift
Nicole Ezcurra
Advisor: Dr. Karen Copple
Erin Doherty
Advisor: Dr. Rachel Lingnau
Cassidy Stradling
Advisor: Dr. Adrienne Bratcher
Kelly Tanner
Advisor: Dr. Karen Copple
Lauren Ontiveros
Advisor: Dr. Adrienne Bratcher
Kayla Lee
Advisor: Dr. Suzanne Swift
Jamie Carissa Plata
Advisor: Ms. Nicole Bougie
Rebecca Lodato
Advisor: Ms. Erin Sherman
Brianna Gilligan and Cameron Abeyta
Advisor: Mr. Dustin Seifert
Darby Cavanaugh
Advisor: Mr. Rick Shepardson

Poster and Creative Work Display Presentation Abstracts

Poster/Display Presentation Group 1

A Spatial Analysis on Broken Mammoth Site, Alaska

Presenter: Michael Jeu
Project Advisor: Heather Smith

Broken Mammoth is an archaeological hunter-gatherer hunting-camp site that dates to 12,000 yrs. to 9,300 yrs. BP and is located at Big Delta, AK by the Tanana River. Hunter-gatherers hunted deer, elk, bison, and mammoth nearby the site. The site has numerous lithic activities that happened around the hearths. Krasinski and Yesner (2008) excavated Cultural Zones 3 & 4 with over thousands of faunal remains and debitage discarded around numerous hearths. The main goal of my project is to digitize the Broken Mammoth site for identifying human activities from the artifacts and features.

Blackwater Draw Locality 1: El Llano Excavation - A Geospatial Analysis

Presenter: Taylor McCoy
Project Advisor: Heather Smith

Blackwater Draw, located in eastern New Mexico, is the Clovis type site. The locality boasts over 85 years of archaeological research by multiple institutions and researchers. This project focuses on the El Llano excavation outlined in James Hester's Blackwater Locality NO. 1 (1972) that was completed in the summer of 1964 in collaboration with the El Llano Archaeological Society of Portales, Texas Technological College, and the Museum of New Mexico. This excavation revealed an area where Clovis artifacts were located in direct association with mammoth bones. In this poster, Hester's synthesis of the El Llano excavation is compiled into a planview map of the entire locality created using ArcGIS. Results allow the locality and the El Llano excavation to be studied spatially within ArcGIS. Furthermore, results of this project will be used as a pilot study for my thesis project which will use ArcGIS to study the locality and the aforementioned past research in its entirety where coordinate data is also available.

Folsom Raw Material Usage Across the Southern High Plains

Presenter: Joseph McConnell
Project Advisor: Heather Smith

Folsom sites across the Southern High Plains evidence a preference for high-quality lithic raw materials such as Edwards chert, Alibates dolomite, and Tecovas jasper, raw materials and produced Folsom projectile points of varying sizes; a reflection of usage and, potentially, distances to quarries. To determine questions of dominant raw materials, average metrics of projectile points, and locality of sites to quarries, spatial programs were used to acquire and input site coordinates Google Earth was used to measure distances of Folsom sites to quarries. ArcGIS was used for inputting spatial coordinates of Folsom sites and quarries as feature classes and joining of Microsoft Excel tables with metrics to these feature classes. The Paleoindian Database of the Americas (PIDBA)was used for acquiring raw material and metrics of Folsom points at various sites. The high preference for Edwards chert materials, apparent at most sites of this region, may owe to either a preference for the material for production of projectile points or to seasonal hunting and foraging rounds that include Edwards chert quarry locations more than the other quarries. The differing lengths and widths of projectile points observed within this region may owe to both abundance of raw material stores and distances to quarries. Small variation in widths and lengths observed at sites like Blackwater Draw may owe to projectile points that have been heavily reworked or the need to preserve the material based on the distance of the site to the quarry.

Exploring Cultural Differences in Irrigation Canal Systems Through Time at the Creekside Village Site, New Mexico

Presenter: Christine Gilbertson
Project Advisor: John Montgomery
Award Winner

Irrigation systems provided the foundation of many prehistoric and historic communities in the Southwest. Creekside Village near Tularosa, New Mexico, is a Jornada Mogollon site occupied from AD 400-1150 containing evidence of both prehistoric and historic irrigation systems. Geoarchaeological investigations of stratigraphic sequence and site formation processes are used to reveal possible morphological differences in the two systems, which may be used to distinguish the canal systems culturally and chronologically. This comparative phenomenological and geoarchaeological approach to Creekside

Village's irrigation systems is an investigation into the potential of sediment characteristics, canal morphology, and placement to inform our understanding of past cultural landscapes. Methods include participatory excavation/trenching and survey to aid site understanding as well as stratigraphy, particle grain size distribution, soil texture, organic and calcium-carbonate content, and GIS modelling. A focal goal of the project is to contribute to our diachronic understanding of past cultures' perspective and mitigation of water scarcity in the Southwest.

Bosque Redondo as a Pharmakon: A Contextualized Understanding of Health and Medical Care

Presenter: Rebekha Crockett
Project Advisor: John Montgomery

Fort Sumner, and the reservation known as Bosque Redondo, has a complex and controversial history. During the 1860s, Bosque Redondo was occupied by various groups: the U.S. military, the Diné (Navajo), and the Mescalero Apache. The Fort Sumner Historic Site archives have the potential to explore the effects of contact between these group, in particular regarding health. In official reports, the medical staff make numerous claims about illness among the American soldiers, the Diné, and the Mescalero Apache. Moreover, the medical staff kept daily logs of patients. This poster is based on a pilot study conducted in preparation for the thesis research. The pilot study sought to describe patterns of health and illness between the three groups and across age and gender using six weeks of data. Additionally, this research examines a small number of the claims made by medical staff at Bosque Redondo and compares them to the patterns of illness that are documented in the medical logs to see if the claims are supported. Lastly, this research contextualizes the patterns and claims using relevant historic and ethnographic information. The thesis will go further by examining more claims and having a much larger data set. This case study of Bosque Redondo explores questions of illness, the way archives shape our understanding of the past, and methods that can be used to challenge the official narrative.

Poster/Display Presentation Group 2

Effects of High Concentration Vivissential Amino Acids Sports Drink Ingestion on Performance in Trained Athletes

Presenter: Klaudia Szych
Project Advisor: Matthew Barlow
Award Winner

Essential amino acids are necessary for protein nutrition and muscle sustainability. Previous studies looking at the effects of BCAAs did not result in measurable reductions in muscle damage and enhanced recovery of muscle function. The Calwood Nutritionals Company manufactures a balanced nutritional formula of amino acids with the addition of a higher concentration of arginine and methionine, which decreases muscle degradation. The purpose of this study is to examine the changes in performance following the chronic consumption of the essential amino acids in collegiate athletes while following the strength and conditioning training plan of the University Athletics department. We aim to compare a single-dose amino acid group (SDG), double-dose group (DDG) and a placebo group (PG) on a double-blinded study to measure changes in the lactate threshold, aerobic capacity and strength. 17 participants (7 PG, 6 SDG, 4 DDG) completed a health screening visit, 30 days of consuming two 20oz Gatorade drinks per day with or without added amino acid powder, and a follow up visit. The DDG improved significantly in push-ups. The SDG improved significantly in their maximal aerobic capacity. All groups improved significantly in 3RM dead lift and 3RM bench press. The DDG was the only group that improved significantly in 60m sprint. The changes between the groups were not statistically significant. The changes within the groups were significant. These results suggest that vivissential amino acid supplementation combined with training does increase the strength and improves the performance in trained athletes.

Dynamic Graded Muscle Exercise in Sedentary Metabolic Syndrome women; Effects on Cardiac Workload

Presenter: Abraham Gomez
Project Advisor: Matthew Barlow

Metabolic syndrome (MetSyn) individuals presented declining sensitivity to insulin (p=.0201) as calculated by insulin sensitivity index (ISI-60). The young women categorized as MetSyn were previously found to have higher percent

body fat (p< .05), and higher expenditure of Kcals (p=.04) compared to controls as measured by 7 day accelerometer. Cardiovascular modification is hypothesized to involve progressive dysfunction of insulin mediated AKT/PKB eNOS pathway. PURPOSE: The purpose of this study is to identify if daily sedentary activity is associated with myocardial workload in the development of the metabolic disorder. We hypothesized metsyn individuals Rate Pressure Product (RPP) would be at elevated at rest and through various workloads of muscle exercise. METHODS: We compared daily activity to heart function in order to identify possible myocardial workload, using RPP between controls and MetSyn (RPP= HR×SBP). Dynamic graded handgrip and single leg kick exercises were used to measure any cardiovascular deficiency between MetSyn and controls. By taking SBP and HR for every workload, we identified differences in cardiac work. RESULTS:RPP values greater than 10,000 bpm/mmHg indicated an increased risk for heart disease, where metabolic syndrome group was found to have higher RPP (p=.02) indicating that their hearts work harder. We also identified that individuals with higher RPP have had more sedentary breaks as measured by accelerometer p=.0227. Handgrip workloads there was a significant increase of RPP between Unloaded, 1Kg, 2Kg. CONCLUSION:We predict that sedentary lifestyles along with developing metabolic deficiency are responsible for increased myocardial workload in MetSyn women.

Crunching numbers on Metabolic Syndrome: finding relationships between Insulin Sensitvity Index (ISI) and Anthropometric Measurements of vascular disease.

Presenter: Andi Johnson
Project Advisor: Matthew Barlow

Endothelium dysfunction has been linked to many pathophysiological conditions including Metabolic Syndrome, or Type II diabetes. Women in this study were considered to have Metabolic Syndrome if they satisfy three out of five criteria (waist circumference > 38 in; triglicerides > 150 mg/dl; hypertensive; HDL < 50 mg/dl; and fasting glucose > 100 mg/dl). A chronic state of hyperglycemia contributes to the development of Metabolic Syndrome as well as decreased insulin sensitivity. The purpose of this project was to assess the success of incorporating the Insulin Sensitivity Index (ISI) as an indicator of endothelial disfunction by constructing linear regressions between ISI and age, ISI and body fat percentage, and ISI body mass index (BMI) for both health controls and metabolic syndrome groups. Large data sets from previous clinical studies were analyzed using Python 3.6 through the data science platform Anaconda Distribution. Data was analyzed using two methods: the first was eradicating any patients missing information in these specific categories (called the “deleted

group"), and the second by filling in gaps in the data by regressing related information contextually for each specific group ("called the refilled group"). Regressions from both groups found ISI to have the highest correlation to body fat percentage, but with insignificant correlation strength. Future studies aim to find stronger correlations with multilinear regressions between ISI and other health measurements.

Vascular deficits in Native American Women with Metabolic Syndrome

Presenter: Jerene Yazzie
Project Advisor: Matthew Barlow

Native Americans are predisposed to vascular diseases due to health disparate lifestyles. We evaluated Native American (NA) women diagnosed with MetSyn or Type II Diabetes and compared them to sedentary control NA and Caucasian (CA) women during vascular measurements. Previous work from our lab indicates that the regional populations with elevated metabolic health issues have declining vascular function during the development of MetSyn. We hypothesize that the NA women with MetSyn or Diabetes will have lower vascular responses due to underlying vascular function restrictions compared to CA women of the same groups. 24 NA (Control=10,MetSyn=10,Diabetic=5) and 30 CA women (Control=15,MetSyn=12,Diabetic=3) completed two visits. Measurements of blood lipids, arterial tonometry (PWV and PWA), ECG and FMD limb comparison of the brachial and popliteal arties were recorded. MetSyn NA and CA exhibited increased differences of CA in ISI (0.5006,0.7202, p=0.0173) while Triglycerides (180.5 mg/dL,102.7 mg/dL, p=0.0829) were higher in NA women. Diabetic NA and CA had a difference in post-insulin (p=0.05362). Both Control groups exhibited increased differences, CA had higher HR (63 bpm, 67.692 bpm, p=0.1324), ISI (1.2325, 0.7908, p=0.0323), and FMD Popliteal rate to peak (mm/sec) (0.33, 0.59, p= 0.1972). In NA, Triglycerides (128.11 mg/dL, 30.70 mg/dL, p=0.0247) and 60sec reperfusion velocity (cm/sec) were higher. The data indicated that NA Control and MetSyn rate to peak were higher while %dilation was much lower than their Caucasian counterpart indicating an earlier vascular deficit.

Baseline and Post-concussive Neurocognitive and Physiological Assessments in Minor Student Athletes

Presenter: Sarah Massey
Project Advisor: Matthew Barlow

Previous work from our lab has indicated a significant detection of cognitive deficit using the Test of Variables of Attention (TOVA) and dual task testing incorporating balance testing along with the Stroop and number recall. In the previous findings these tests identified cognitive decline including reaction time and fine motor deficiencies either not tested by the ImPACT or determined non-deficient in the Post-concussive participants already determined fit to return to play. Recent assessment of minor cognitive activity suggests a significant difference between prepubescent and pubescent brain function. We aim to determine whether prepubescent and pubescent minors' cognitive function as measured by narrow cognitive baseline testing will indicate mild traumatic brain injury symptoms measurements were taken of the SCAT 3, double Stroop, Minnesota Spatial Recognition (MSR) test, Purdue Peg Board (PPB), Reaction Time test (RTT) and the administration of the TOVA. Significantly more mistakes by concussed individual answers were seen during the Stroop and double Stroop. MSR: more mistakes made by baseline pubescent boys than girls, pubescent boys completed the test faster than prepubescent boys. Pubescent versus pre-pubescent boys TOVA test results for the Response Time Mean Total: pubescent boys respond faster than prepubescent boys. DPrime Total: pubescent boys made more wrong selections on average than pubescent boys. Attention Comparison Score in the concussed versus non-concussed minors indicates symptoms of moderate ADHD. The complexities of a large cognitive battery for assessing concussive symptoms for return to play protocols for the minor athletes have been shown in the results from this study.

Comparing Vascular Deficiency between Caucasian and Hispanic Metabolic Syndrome Women

Presenter: Lorenzo Juarez
Project Advisor: Matthew Barlow

Cardiovascular disease (CVD) one of the leading causes of death in the U.S in Hispanics. People with Metabolic syndrome (MetSyn) generally have high blood pressure, excess body fat, fasting glucose and abnormal cholesterol. We evaluated Hispanic (HS) and Caucasian (CA) women diagnosed with MetSyn in NM and sedentary control with initial screening and vascular measurements. Aimed to identify if the health disparate HS population in the study would present with increased metabolic/vascular deficiencies. PURPOSE: We hypothesize that CA woman will have greater differences between the control and MetSyn group compared with HS women. METHODS: 24 participants in total, for HS (Control=6, MetSyn=7) and CA (Control=6,MetSyn=5) women that completed the exercise protocols. Women were categorized as MetSyn if they presented with

3 out of 5 criteria. Results: CA flow (P=.01639) and conductance (P=.0477), was significantly higher at rest for leg kick. CA MAP was also significant lower at rest (P=.03278 Control=77 and MetSyn=93.5) and unloaded (P=.0278Control= 84.6 and MetSyn=.0014). CA women had significant differences between controls and MetSyn including waist (in) (P=.04), Hip (in) (P=.03) triglycerides (P=.03), ISI (P=.01) and Weight (P=.002). HS only had a significant difference in the percent body fat (P=.0295). CONCLUSION: The health disparate Hispanic population may have higher metabolic deficiencies, but present elevated vascular responses compared to Hispanic controls due to potential early disease compensation. With higher metabolic deficiencies the Hispanic population is still higher risk for CVD.

Poster/Display Presentation Group 3

Distribution, seasonality, and prey preferences of species of Proctacanthus Macquart (Diptera:Asilidae) in eastern New Mexico and west Texas

Presenter: Michelle Velo
Project Advisor: Darren Pollock

Proctacanthus is a genus of robber flies with 19 species in North America. Adults are among the largest robber flies in North America, with body lengths reaching 40mm or more. Despite their conspicuous presence in various habitats, the last comprehensive review of Proctacanthus was published over 100 years ago; almost nothing is known about the genus in New Mexico. The objectives of our study were to determine the species diversity, document geographical distribution and seasonality, and to identify the many prey items that were collected in association with species of Proctacanthus. Five species were collected from eastern NM and west TX: P. micans Schiner (111 specimens), P. milbertii Macquart (414), P. nearno Martin (177), P. rodecki James (63), and P. hinei Bromley (15). Proctacanthus milbertii and P. nearno are the most widespread, collected from 6 counties; P. rodecki was collected from three counties, P. micans from two, and P. hinei was collected only in De Baca County. Most of these collections likely represent new county records. The first four species were found in grass-dominated prairie habitats, while the latter was found only along the sandy banks of the Pecos River. Seasonal activity for adults in the study area was from mid-May to late September. Five hundred prey associations were collected, representing seven insect orders. Percentages were: 27% Diptera (of which many were other asilids, including many instances of cannibalism), 25% Hymenoptera (mainly bees and wasps), 22% Orthoptera (all Acrididae), 14% Lepidoptera, 11% Coleoptera, 1% Hemiptera, and 0.2% Neuroptera.

Which environmental factors predict presence of vermilion snapper, red snapper, and red drum eggs in the Gulf of Mexico?

Presenter: Sara Ricklefs
Project Advisor: Jesse Filbrun
Award Winner

In most fishes, population dynamics are driven by variable survival in the early life stages. Thus, fisheries managers seek to understand how environmental factors affect fish eggs and larvae. Patterns in fish egg distributions have been largely ignored due to an inability to visually identify eggs to species. In recent decades, however, molecular identification techniques have become increasingly common and affordable. In this study, we seek to identify the environmental conditions related to egg production by three economically important fishes in the Gulf of Mexico: vermilion snapper (Rhomboplites aurorubens), red snapper (Lutjanus campechanus), and red drum (Sciaenops ocellatus). Fish eggs were collected during 2007–2011 NOAA SEAMAP plankton cruises using an on-board sampler (Continuous Underway Fish Egg Sampler) and molecularly identified to these three species using a real-time multiplex assay. Key environmental predictors were collected on board, including temperature, salinity, fluorescence (a proxy for primary productivity), and depth. Additional environmental predictors (local density of oil platforms and Oceanic Niño Index) were collected from government sources. To investigate which environmental variables best predict egg occurrence for each species, we first ordinated our environmental dataset to produce fewer composite axes of environmental gradients (e.g., nearshore versus offshore) using Nonmetric Multidimensional Scaling (NMS). Second, we compared the NMS axis scores between samples with and without eggs of each species to identify in which conditions eggs were present. By identifying when and where eggs of each species are produced on a gulf-wide scale, we will inform management of these important fisheries.

Water Influences on Hard Ticks

Presenter: Kaniya Wandoval
Project Advisor: Kenwyn Cradock

Ticks are periodically exposed to flooding of their environments due to heavy rainfall or potentially a body of water overflowing its banks. This study investigated the response and survival of Ixodes scapularis (Blacklegged Deer Tick) and Amblyomma americanum (Lone Star Tick) to an inundation event. In a lab setting unfed adults were immersed in water for either 24 hours, 48 hours, or

one week. There was zero mortality across the treatments indicating that unfed adults of these species are capable of surviving flooding events. Strategy though did differ among individuals, with some climbing above the water, while others remained submerged in the soil.

Quantifying diel feeding patterns in juvenile channel and hybrid catfish

Presenter: Jeremiah Olivas
Project Advisor: Jesse Filbrun

Channel catfish (Ictalurus punctatus) and hybrid catfish (I. punctatus × blue catfish, I. furcatus) are widely produced in aquaculture facilities as sport fish or food fish. To improve production reliability for both fish types, hatchery managers must understand the foraging activities and diet preferences of first-feeding fish. The objectives of this study were to identify diel patterns in the taxonomic preferences of the fish for crustacean zooplankton with and without commercial feed provision. In 2016, a feeding experiment was performed using a 2×2 factorial design by stocking channel catfish or hybrid catfish in tanks and providing the fish access to live zooplankton only or live zooplankton plus a commercial diet. The experiment was performed in glass aquaria filled with pond water and stocked regularly with live crustacean zooplankton collected from a eutrophic pond. All fish swam upward at 4–5 days old and had visible food in the gut at 5–7 days old. Identification and enumeration of 10-day-old fish gut contents and concurrent zooplankton samples collected from the tanks are ongoing. We will compare fish taxonomic preferences for their zooplankton prey between noon and midnight and across treatments. Channel catfish and hybrid catfish grew faster in length and weight when provided zooplankton plus a commercial diet as compared to zooplankton alone. However, there were no differences in growth rate between fish types within each diet treatment. Results from this experiment will improve feeding methods for reliable catfish production.

Effects of predator kairomones and food availability on Daphnia pulicaria tail spine length

Presenter: Matthew Bazaldua
Project Advisor: Jesse Filbrun

Daphnia are planktonic crustaceans that play a key role in structuring the lower food web of freshwater ecosystems. Many Daphnia species exhibit inducible defenses that reduce their vulnerability to predators, including

exaggerated helmet and tail spines. However, expression of these defenses may come at substantial cost to lifetime reproductive output. We conducted a laboratory experiment to disentangle the effects of predation risk and food availability on egg production and tail spine length of Daphnia pulicaria, a locally collected species. We hypothesized Daphnia pulicaria exposed to fish kairomones (i.e., exuded chemicals) would have longer tail spines, regardless of food availability. In 2018, we conducted a 2×2 factorial experiment by crossing presence or absence of fish kairomones with high or low feeding rates. Each treatment was replicated in six 1L tanks, with each tank stocked with five Daphnia pulicaria clones. All tanks received food once daily and predator-exposed tanks received water once daily from a tank containing a fish predator that was separately fed Daphnia pulicaria. After two weeks, surviving Daphnia were preserved and imaged under a stereomicroscope to identify eggs and measure tail spines. Comparisons of egg production and relative tail spine length by treatment are ongoing. Results from this study will provide a better understanding of the causes and consequences of inducible defenses in Daphnia.

Poster/Display Presentation Group 4

Theobroma cacao (cocoa) and its effects upon growth of *Staphylococcus aureus* and bacteria harboring a multidrug efflux pump

Presenter: Bianca Banda
Project Advisor: Manuel Varela

Although bacteria are ubiquitous, only a small percentage of them cause disease. However, some of these pathogens like *Streptococcus aureus* have become resistant to antibiotics. This multidrug resistance has become a vast issue for global health and other fields. Therefore, discovering new ways to combat multidrug resistance has become the center of many research projects. There has been previous research on the effects of *Theobroma cacao* (cocoa) against other pathogens. Therefore, I hypothesized that *Theobroma cacao* will prevent the growth of *S. aureus* and host cells with the LmrS multidrug efflux pump. The rationale for this hypothesis is that once we know the extent to which cocoa affects bacterial growth of *S. aureus*, we can find new ways to enhance the effects and use it to combat the ever-growing issues of antibiotic resistance. Within this study, the following five isolates methicillin-resistant *S. aureus* (MRSA), methicillin-susceptible *S. aureus* (MSSA), *E. coli* KAM32, *E. coli* KAM32/PSP72, and *E. coli* KAM32/PSP72/lmrS were used to perform minimum inhibitory concentration (MIC) testing to observe the antimicrobial effects of cocoa extract. I found that

the concentration of cocoa extract, which significantly decreased the growth of MRSA, was 10mg/ml. *Theobroma cacao* extract was not found to halt the growth of any of the five isolates. However, I can conclude that *Theobroma cacao* is inhibitory to the growth of *S. aureus* and host cells harboring the LmrS multidrug efflux pump.

Evaluation of the food spice Cinnamomum zeylanicum (cinnamon) on the growth of the pathogenic bacterium Staphylococcus aureus

Presenter: Steven Lopez
Project Advisor: Manuel Varela

Bacteria are ubiquitous but only a very small percentage of all bacteria have the potential to result in an infection. Unfortunately, certain types of those harmful bacteria have developed a resistance to some of our antibiotics, known as multidrug-resistant bacteria. These bacteria are of high concern because of the danger they present to communities all around the world. Historically, herbs and spices have been used in our everyday life as flavoring agents and antioxidants. We have also been able to use some of these herbs and spices as agents to fight off bacteria by using them as home remedies because they have antibacterial agents. One such spice, Cinnamomum zeylanicum (cinnamon), has been known to carry antimicrobial agents. It is not known, however, whether C. zeylanicum could be used as an antibacterial agent against multidrug resistant bacteria. This study examined the potential use of C. zeylanicum against methicillin-resistant S. aureus (MRSA), E. coli KAM32, E. coli KAM32/pSP72, E. coli KAM32/PSP72/lmrS and methicillin-susceptible S. aureus by using the minimum inhibitory concentration determination method. The complete cessation of growth was not achieved but there was significant inhibition of the bacterial growth.

Cover crops affect soil organic carbon and nitrogen in a winter wheat-sorghum-fallow rotation

Presenter: Pramod Acharya
Project Advisor: Young Cho
Award Winner

Cover cropping has been increasingly considered to improve soil health in semiarid western United States. We aimed to evaluate the effects of diverse cover crops on soil profile carbon (C) and nitrogen (N) in a winter wheat-sorghum-fallow rotation. The study was conducted at New Mexico State University Agricultural

Science Center near Clovis, NM and had eight treatments and three replications. Cover crop treatments were fallow (no cover crop), pea, canola, Oat, and mixtures of pea and canola (PCM), pea and oat (POM), pea, oat, and canola (POCM), and six species mixture of (POCM, Hairy vetch, Forage radish, and Barley). Soil samples were collected from 0-20, 20-40, 40-60, and 60-80 cm depths and analyzed for soil organic carbon (SOC), total N, and inorganic N. Soil samples from 0-20 cm depth were also analyzed for potentially mineralizable carbon (PMC) and nitrogen (PMN), and microbial biomass carbon (MBC) contents. Cover crop biomass were significantly different among treatments. Inorganic N and total N content were significantly different among treatments at depth 0-20 cm and 20-40 cm. Inorganic N content was greater in fallow plots than other treatments in surface 0-20 cm depth. Compared to 2016, the N pools decreased significantly in 2018 while no significant differences were found for SOC content. Similarly, soil PMC, PMN and MBC contents at 0-20 cm depth did not differ among treatments. It may take more than three years to see effects of cover crops on C and N pools in semi-arid soils.

Poster/Display Presentation Group 5

Taurine biosynthesis through the intermediate molecule thiotaurine

Presenter: Rebecca Cope
Project Advisor: Steven Karpowicz
Award Winner (Tie)

Taurine is an amino acid-derivative and an important biological molecule in many animals. It has a wide variety of suggested functions in many different cellular locations. However, the exact functions of and chemical reactions involving taurine and its related molecules are not well understood. This project examines a poorly understood metabolic pathway to synthesize taurine, which has been largely ignored since its discovery in the early 1960s. Spectroscopy and kinetic measurements will help describe the enzymatic and non-enzymatic reactions involved in this taurine biosynthetic pathway. A thorough understanding of this metabolism may provide a new biological context for the effects of taurine and taurine deficiency in animals.

Investigating the biochemical effects of salt stress and taurine supplementation on the green alga C. reinhardtii

Presenter: Anna Winslow
Collaborators: Haily Galindo and Rachael Young
Project Advisor: Steven Karpowicz

Taurine, an amino acid-derivative, is present in many eukaryotes. There are some eukaryotic organisms that lack taurine production and therefore metabolic activity of taurine is nonexistent. The biochemical effects of adding taurine to the growth media of a eukaryote that does not normally synthesize or use taurine, has not been extensively studied. In this project, we will grow the green alga C. reinhardtii under normal media and salt stress conditions both in the absence and presence of taurine. We will then isolate metabolites from cells grown in all four growth environments. Isolated metabolites will be identified using mass spectroscopic analysis. The comparative results will give information about biochemical changes in C. reinhardtii cells. From this study, we will see if C. reinhardtii can use exogenous taurine in its metabolic processes to confer resistance to high salt concentrations.

Synthesis and Characterization of Penta(p-Phenylene) for Organic Solar Cells

Presenter: Haily Galindo
Project Advisor: Juchao Yan
Award Winner (Tie)

Organic solar cells use photovoltaic polymers to absorb and convert light energy into electricity. In collaboration with Brookhaven National Laboratory (BNL), Dr. Yan and Mr. Miller are synthesizing ladder-type, oligo(p-phenylene) s for studying electron delocalization. The oligo(p-phenylene)s are composed of repeating conjugated units that form a planar molecule with a phenylene base. A multi-step organic synthesis will be carried out using previous intermediates to obtain a target molecule of penta(p-phenylene (L5PCN). Thin layer chromatography (TLC) and column chromatography are utilized in this project to purify the intermediate molecules and final product. The impure sample is loaded onto the stationary phase (silica gel) and the mobile phase eluent (hexane) is allowed to flow through. Our target compound is soluble in non-polar solvents and will elute first. Fractions of the mobile phase are then collected and analyzed by TLC to see if separation is successful and to test the purity. The target molecule L5PCN will be studied at BNL to probe electron delocalization through time-resolved infrared spectroscopy followed by pulse radiolysis. We anticipate

that the conjugation of the L5PCN molecule will ease the photon absorption and electricity generation.

Electrochemical Characterization of Oligo(p-phenylene)s for Organic Solar Cells

Presenter: Xiaochan Zhang
Project Advisor: Juchao Yan
Award Winner (Tie)

Due to the growing demand for "green" and sustainable energy, and the obligation to control greenhouse gas emissions, people have to look for a renewable energy source to reduce emissions of greenhouse gas. Based on its benefits of no pollution and renewable nature, solar cells have become a highly researched subject in recent years. The conversion efficiency of inorganic solar cells have a limitation around 20%, and silicon solar panels are vulnerable to temperature fluctuations. In addition, because solar cells have a high cost of raw materials, and these materials are difficult to construct into large flexible panels, more attention has been paid to the development of organic solar materials. Organic materials are abundant and easy to process. Thus, organic solar cells are a low-cost technology to harness solar energy. Phenylene-based conjugated oligomers and polymers are promising candidates for organic electronics and solar cells. Several terphenylenes and tetraphenylenes have been synthesized and purified, and 1H-NMR, 13C-NMR, and X-Ray diffraction have already been used to characterize these compounds. To further investigate the properties of these phenylenes, I propose to use cyclic voltammetry to study their electrochemical behaviors, including the number of electrons transferred, and the redox potential. Particular attention will be paid on the effects of different number of benzene rings and different substituenting groups on the redox behaviors. The completion of this experiment is intended to provide some useful information to further understand of conversion efficiency of organic solar cells, which use the oligo(p-phenylene)s as their materials.

Investigating Two Enzymes Involved in Taurine Metabolism

Presenters: Rebecca Quintana and Drew Gombar
Collaborators: Garrett Meyer, Rebecca McCabe and Harley Bendzus
Project Advisor: Steven Karpowicz

Taurine is a poorly understood amino acid derivative that has many biosynthetic pathways that have yet to be thoroughly studied. In this study, we

want to research Bile Acid-CoA: amino acid N-acyltransferase (BAAT), a taurine metabolism enzyme, and Cystathionine β-synthase (CBS), an enzyme that diverts intermediates to other metabolites. These two enzymes' protein activity has yet to be fully understood. To get a better grasp on the activity of these two enzymes we plan to use polymerase chain reaction (PCR) and molecular cloning of the gene. These biochemical methods will enable us to get a better understanding of how these proteins work and how they contribute to taurine biochemical pathways.

Investigation of Taurine as a chelator

Presenter: Garrett Meyer
Project Advisor: Steven Karpowicz

Taurine (2-aminoethanesulfonic acid) is a biologically-relevant amino acid-derivative found in many Eukaryotes. Its potential function as a chelator has not been investigated yet. Chelation is the ability of a molecule to bind metals for transportation. Biological chelation can be used to extract heavy metals from the body and prevent free metal-catalyzed oxidation reactions. Taurine's negatively-charged sulfonic acid group is a possible binding site for positively-charged metal ions. Using isothermal titration calorimetry, the thermodynamics of metals binding to taurine is measured. Establishing chelating abilities for taurine may suggest a mechanism by which taurine protects cellular mitochondria from oxidative damage.

Poster/Display Presentation Group 6

Node Localization using XBee

Presenter: John Dermer
Project Advisor: Chunchao Lane

With the drive to make every devices around us smart, the Internet of Things (IoT) is created by the connecting all of these new smart devices. Location information is indispensable for all these devices, it is currently being discovered with GPS or other hardware based techniques but they are all limited by cost and energy consumption. Location information can be estimated accurately if accurate distance information between nodes is available. In this research, the Digi Xbee is being tested to investigate its capabilities as well as it's compatibility with our proposed algorithm. The algorithm is based on transitional region based

distance estimation. In a sender's transitional region, the chance for a receiver to receive packets from the sender is inversely proportional to the distance it is from the sender; the relationship between packet loss and distance is close to linear. For a network, all nodes estimate their distance to all their neighboring nodes. The Digi Xbee is a radio that allows for short range communication between a set of nodes, and is a good candidate to test the proposed algorithm.

Bird Repelling Circuit Project

Presenters: Aniceto Chavez and Damilola Kunnu
Project Advisor: Hamid Allamehzadeh
Award Winner

Some birds are major threats to the field of agriculture, airport control operation, power lines, and serenity of the environment. Most common pest birds in many countries are house crows, common myna, jungle myna, white-cheeked bulbul, grackle, etc. In order to deter these birds away, many traditional methods such as scarecrow models, sound blasters, hawk kites, flashes, lasers, and colored lights were used. One major pest bird on ENMU campus is grackle. In this project, an effective bird repellent is designed based on high power electronic signals with audible sounds. The electronic signals are generated through an LM384 sound power amplifier, a buffer and a sine wave generator. The designed bird repelling circuit was tuned for optimal performance. The generated frequency sounds can deter bird that are able to hear that range of frequency tones. A research study on the range of frequencies that various birds can hear was conducted also. Different sounds for deterring different species of the birds is generated through variable electronic components of the circuit. Finally, to evaluate the performance of the device, the designed bird repellent will be tested on ENMU campus grackles population.

Poster/Display Presentation Group 7

Workplace Harassment

Presenter: Lydia Mitchell
Project Advisor: Matthew Haney

Workplace harassment is an ongoing issue that is well documented. Harassment in the workplace takes many forms such as racial, age, gender,

and sexual. Workplace harassment is worthy of continued research as it is an issue that is constantly changing. When a co-workers or an individual in an authoritative position makes an inappropriate comment, and off-color joke, an ageist remark, or an unwanted brush of the hand, the victim is often apprehensive about reporting the incident for fear of repercussions. This study will focus on the fashion industry as many of the young men and women pursuing this area are often exploited when the aim is to primarily further their career. Through content analysis of media articles, a framework of information will be proposed that could inform aspiring professionals of precursory measures to limit the likelihood of an incident and offer insight as to the best practices of managing the issue without professional implications. The fear of repercussions is what prevents action-taking place of workplace harassment. With evidence from former cases presented in this study, the hope is that the fear of possibly repercussions will become less of a factor in victims coming forward and speaking up about what happened to them in the workplace.

The Downfall of Kmart

Presenter: Kyra Castro
Project Advisor: Matthew Haney

In recent years, many businesses have been shut down or filed for bankruptcy. One of the largest in recent years is Kmart. This study's focus is to help address the questions surrounding Kmart's bankruptcy. This study will consider how consumer perception affected Kmart's profitability. Since Kmart stores are still continuing to liquidate current assets, having a full scope of the current Kmart stores that are being affected may be limited. The study will evaluate factors such as inconsistencies for strategic position that may have led to the struggle of many Kmart stores. The study will also examine competitors' positioning that led the businesses to be more profitable. The study will examine various methods such as the Huff Model and GIS that aid in representing Kmart's success in strategy in real numbers. The study will use recent articles to aid in determining factors that may have led to Kmart's bankruptcy. This study will additionally address what small businesses are doing to battle "big box" stores such as Kmart. This study will give insight on why "big box" stores such as Kmart struggle, while other competitor stores (large and small) are able to be successful. Additionally, the study will examine Kmart's competition, the largest being Target and Wal-Mart, and comparing the competitors' strategies to Kmart's.

Skin Deeper: Effective Beauty Marketing and Consumer Response

Presenter: Reagan Runyan
Project Advisor: Matthew Haney
Award Winner

Businesses within the beauty industry spend billions of dollars marketing new products to consumers each year. Consumers are often unconsciously influenced into buying beauty products. An analysis of what constitutes effective marketing, unconscious and otherwise, is presented to be applied to the process of selling cosmetics. In addition to traditional campaigns and in-store sales, social media has created a new channel for companies to present products to target audiences. Media influencers are paid by brands to promote products with the intent of generating more sales. By obtaining data that corresponds to the promotion of products from top influencers on new media, the effectiveness of using social media rather than traditional media to promote new products can be measured. Ten of the top 50 most followed influencers on Instagram were identified, as well as the top three products promoted by each influencer. The sales for the corresponding brands were reviewed in correlation to the time period influencers promoted each product to measure the effectiveness of influencer promotion. The reasoning behind the success (or failure) influencers have selling beauty products is examined, as well as the possible unconscious needs/wants backing sales of cosmetics. Understanding the reasons behind why new media methods of marketing are successful can be surveyed and applied to other areas of marketing within the beauty industry to generate more sales for various sized beauty companies. Considering the results of this study, practical implementations can be made in the marketing method used to more effectively and successfully sell cosmetics.

Unconscious Bias in the Decision-Making Process

Presenter: Yacaranday De La Torre
Project Advisor: Matthew Haney

Unconscious bias occurs when people categorize specific qualities and traits, thus creating stereotypes without awareness. This research will identify the factors that influence the decision-making process of managers when hiring or promoting employees and the correlation between the glass ceiling effect and unconscious bias. The focus will be on gender differences, but age and race/ethnicity will also be considered. The content analysis of twenty articles will be used to identify trends. The study can be useful for managers so that they are

aware of any underlying bias, which can therefore help them maintain a healthy, unbiased business environment.

Moral Principles of Marketing Ethics

Presenter: Kandice Miles
Project Advisor: Matthew Haney

Marketing ethics is a broad and often difficult topic to understand because it's based on numerous opinions. Ethics is a branch of philosophy that deals with individuals moral principles that influence one's behavior. Ethical principles are important in marketing executions as it is the area of business that interacts and attracts the audience. The problem with marketing ethics is the various perspectives that can be involved when deciding which marketing approach to take. This research will ascertain the challenges marketers face and the effect their ethical practices have on advertising. Throughout this study there will be mentions of several different instances of controversial advertising, why it happened, why it was considered unethical, and how it could've been avoided. Data will be collected through several business ethics journals that provide information on the background of marketing ethics, the consumers' standpoint, and the perception of the individuals involved. This research will propose criteria that can limit backlash which will benefit media marketers and consumers.

Poster/Display Presentation Group 8

Bullying & Harassment in the Workplace: Do You Have a Bull in Your China Closet?

Presenter: Heather Womack
Project Advisor: Matthew Haney

Unfortunately, bullying does not just happen on the playground any more. Many of the children who are bullies in primary and secondary education grow up to become adult bullies. The statistics are alarming. According to the Workplace Bullying Institute 2017 survey: 60.4 million American are affected by it, 29% of targets remain silent, 61% of bullies are bosses, 40% of bullied targets are believed to suffer adverse health effects, and 77% of Americans support enacting a new law regarding bullying in the workplace. This research proposal presents a review of the cause and effect of bullying in the workplace, problems, and the implications that follow. Any adult in the workplace will benefit from additional

empirical research on this subject matter. The research will empower employees to recognize the signs of bullying, provide training and resources, and solutions for what needs to change.

Bringing awareness to Marketing ethics: through Morals and the Food Industry

Presenter: Alizarin Beard
Project Advisor: Matthew Haney

Advertising a product or service can lead to internal conflict with morals and how well a task is completed. Research explains how food industries perceive and interpret trust when selling to customers as well as evaluation as to how society has shaped the way individuals view themselves and their surroundings. This research is an effort to ascertain the most appropriate and effective method of information presentation to consumers to elicit a positive outcome. Through content analysis of extant literature, a trend of consumer perception will be presented to understand the important factors pertaining to ethical marketing practices. The implications of this study will help those in business understand the issues and importance of what marketing ethics brings to the table. In marketing, it is needed to understand not only what is being put out, but also why and will it affect peoples' morals, choices, and govern how consumers deal with these choices. To handle these implications, businesses should align decisions to determine if one's morals contradicts with that of product being presented and when the appropriate time to remove or insert morals into the equation. Businesses must be able to address situations that arise with those of right and wrong.

Workplace Bullying: A framework for solution

Presenter: Keelee Whitaker
Project Advisor: Matthew Haney

Bullying in the workplace is an ongoing concern that is affects all levels of an organization. The unethical ramifications can impact company morale and the bottom line. Human resources often have policies in place to prevent bullying, however, the policies have no effect it the victim fails to report the violation. Often, the victim of workplace bullying is apprehensive to file a formal grievance for fear of retaliation. This research will assess the organizations listed on Forbes top 100 and analyze employee turnover rates available through public information. Employees, managers, bosses, and customers will benefit from this

research. By putting these training and prevention plans in place, managers and employees will know the signs of bullying, how to reduce it, and how to prevent and stop future bullying attacks.

Using Business Concepts for Teaching

Presenter: Charles Countee
Project Advisor: Robert Schneider

This poster visually demonstrates that there are management theories that transfer well from industry to the classroom. Students can potentially be motivated through the use of these theories.

Does female education have an effect on poverty?

Presenter: Asem Aldahlawy
Project Advisor: Sue Stockly
Award Winner

Indonesia is a poor country; many people live under poverty and work all day to make a living despite the age of the person. In this research I focus on the girls who dropout of school and how might that effect the poverty in Indonesia. How does female dropout of middle school effect poverty? This will be the question for my research, focusing on the independent variable “girls dropout of middle school” and the dependent variable “poverty”. The data was collected from the World Bank; the data shows a negative correlation between the independent and dependent variables. The methodology used for this research is a multivariate regression.

Poster/Display Presentation Group 9

How Does Lawful Permanent Immigration Affect United States real Gross Domestic Product(GDP)

Presenter: Kaitlyn Kluna
Project Advisor: Sue Stockly

Everybody knows that there are major political debates today over the topic of undocumented immigrants in the United States economy. I want to lean away from those disputes in this research project and instead look at how documented immigrants affect the United States real Gross Domestic Product (GDP). I collected employment-based preference data regarding lawful permanent immigrants to the United States from the Department of Homeland Security website. In the research my independent variable is the lawful permanent immigrant's employment data and my dependent variable will be real GDP. I included control variables for trend and population growth. The study shows that lawful permanent immigration does have a positive effect on real GDP.

Do Chinese tarrifs on goods affect the American jobs market?

Presenter: Tracy Virden
Project Advisor: Sue Stockly

With the topic of tariffs in the forefront of the news, there is much uncertainty held by the average American of the effects of tariffs on the economy. It is my belief many people could benefit from a simplistic view of the impacts of these tariffs. Dollars and unemployment numbers are basic economic variables that are understood by most individuals with an interest in the macroeconomy. Multivariate regression analysis of unemployment numbers and tariffs levied by China from 1992-2018 will indicate if there is a direct correlation between unemployment and the amount paid in tariffs. Using unemployment data from the Bureau of Labor Statistic as a dependent variable and tariff dollar totals from the Federal Reserve Economic Data bank as an independent variable, regression analysis indicates there is a positive relationship between the independent and dependent variables. This statistical significance indicates that increases in tariffs levied on American goods by the Chinese increases the American unemployment rate.

The Affect of Sex-Ratio on GDP

Presenter: Morgen Nations
Project Advisor: Sue Stockly

Most often the sex-ratio between the male and female population of any country is approximately 1:1. However, in certain cases, this ratio is skewed. Past research has concluded that a skewed sex ratio can create long-lasting economic implications. For example, in China there is evidence that in regions with a

higher male-to-female sex-ratio, there are higher crime rates, a larger tendency to migrate from rural to urban areas, and a considerable change in spending habits as males attempt to compete for brides. This study is focused on discussing one question in particular, does a skewed sex ratio affect a country's GDP? With data supplied by the World Bank and FRED, and a specific focus on China, this study uses constant GDP per capita as a dependent variable, and the percentage of males-to-females as an independent variable. The data set includes control variables that measure trend and education by gender and is a multivariate regression. The statistical analysis shows a positive relationship between the male-to-female ratio, and the GDP per capita.

Political Influences on Real GDP

Presenter: Nicholas Vaughan
Project Advisor: Sue Stockly

This project evaluates how the U.S. President's political affiliation affects the business cycle. I came up with this query because it seemed so much of the current president's campaign victories came from promises to increase the nation's productivity. Real GDP is the dependent variable and political affiliation is the dichotomous independent variable. Control variables are included to measure time and changes in the macro economy. The methodology is multivariate regression. Statistical analysis indicates that real GDP in the U.S. increases when the President is affiliated with the Democratic Party. This confirms other studies found in a literature review.

How does population growth rate in China affect real GDP?

Presenter: Peiyu Jiang
Project Advisor: Sue Stockly

In 1978, the Chinese government introduced policies to control population growth. The aim of this study is to analyze how population growth in China affects real Gross Domestic Policy (GDP). Data for these variables are from Federal Reserve Economic Data at the St. Louis Federal Reserve Bank. Control variables are included to measure time and other factors in the macroeconomy. The dependent variable is real GDP from 1960 to 2014. The independent variable is the population growth rate from 1960 to 2014. The methodology used is multivariate regression. The statistical analysis shows a negative relationship between population growth rate and real GDP in China. It indicates that the Chinese

government policies designed to control the population growth rate did result in economic growth measured by increases in real GDP increase.

China's Growth in International Trade and its Effects on the Quality of Life

Presenter: Marisol Olivas
Project Advisor: Sue Stockly

The motivation for this research was prompted by the recent conversations of China and the global impact this country has on international trade. The news has put a spotlight on the trade war that the United States has with China. The research question for this study is, "How has China's growth in international trade affected the quality of life in the country?" The independent variable is trade in China, measured by China's imports to the United States from 1992 to 2016. These data were retrieved from the Federal Reserve Economic Data website. Quality of life is measured by life expectancy and school enrollment. These variables were retrieved from the World Bank Open Data website. The methodology is multivariate regression. The statistical analysis indicates with the advancement of international trade, there is a progression in China's life expectancy and expansion in education.

Texas Unemployment and Oil

Presenter: William Powell
Project Advisor: Sue Stockly
Award Winner

In this research project, the question that is being raised is whether or not there is a relationship between the price of crude oil in the United States and unemployment rates in Texas. The state of Texas is well known for its large dealings within the oil industry and has on multiple occasions been named as one of the leading states for economic growth by prominent publications such as Forbes and Business Insider. Furthermore, data from the Bureau of Labor Statistics shows values that are consistent with the claims being made by these publications that Texas is a leader in economic growth. For this particular study, the price of crude oil acts as the independent variable while the unemployment rates in Texas serve as the dependent variable. Data on unemployment rates has been retrieved from the Bureau of Labor Statistics while data on crude oil prices has been taken from Macrotrends.Net which provides data for a variety of economic and business-related statistics. The practicality of this research lies in

the ability to forecast future periods of higher or lower unemployment based on the direction of crude oil prices. In this way, businesses and individuals can be better equipped to handle future economic movements."

Poster/Display Presentation Group 10

Educating Preschool Staff: A PrAACtical Look at Complex Communication Needs in the Classroom

Presenter: Genevieve Norris
Project Advisor: Karen Copple

The purpose of this research is to identify whether or not the intervention of a presentation addressing augmentative and alternative communication (AAC), will increase communication opportunities for preschool-aged children, who have complex communication needs (CCN). A pretest was given to measure the average communication opportunities provided by teachers and instructional assistants, to children with complex communication needs in a preschool classroom. Data included documenting the number of times a child had the opportunity to make not only requests, but also to comment, and answer questions. Observations also included how staff provided opportunities in other settings (i.e., art, circle time, and math). Following the initial observations, preschool staff viewed a presentation informing them of what augmentative and alternative communication is, who falls under the umbrella of having complex communication needs, and a demonstration of how to implement alternative communication into multiple settings. Following the presentation, an additional three observations were completed to measure the effect of the presentation on staff members. A t-test for repeated measures was used to answer the questions presented in this study. Outcomes are hypothesized to show an overall increase in communication opportunities following the AAC presentation.

Can You Hear Me Now? Examining the effect of a professional development presentation on educators' knowledge about hearing loss

Presenter: Erin Doherty
Project Advisor: Rachel Lingnau

This study investigated the effectiveness of an informative presentation about hearing loss (HL). The goal of the presentation was to improve educator's

knowledge regarding hearing loss, its educational impact, and strategies to use when working with hard of hearing (HOH) students. Participants included a variety of educators including general education teachers, special education teachers, and paraeducators. A questionnaire about hearing loss measured participants' understanding before, following, and two weeks after watching the hearing loss presentation. Although educators' scores decreased significantly two weeks following the presentation, their scores were still significantly higher than the pretest scores. Results from this study provide preliminary information which supports the addition of a hearing loss presentation as part of continuing education for teaching staff.

A Spoonful of Training: Transforming the Approach to Feeding Intervention in Skilled Nursing Facilities

Presenter: Jayme Gage
Project Advisor: Suzanne Swift

For residents in a skilled nursing facilities (SNF), nutrition and hydration are at the forefront of health and wellbeing. It is imperative that individuals responsible for feeding residents are adequately trained in feeding and swallowing disorders and are confident in their intervention abilities. Studies have shown that there is an overwhelming deficit in education regarding these disorders among these individuals. This lack of knowledge can have a negative impact on the residents and can put them in danger for chronic and severe health difficulties. It was found that using educational in-services can enhance the knowledge and confidence in participating individuals. A small group, quasi-experimental study was conducted using 13 individuals responsible for feeding in SNFs. Results from pretest and post-test surveys were compared using a t-test for repeated measures to examine the change of knowledge and confidence after attending an educational in-service. Statistics found that individuals who attended the in-service showed a significant increase in knowledge gained, but no significant change in confidence with p levels of 0.00019 and 0.10689, respectively. Overall a significant increase in total raw scores between pretest and post-test was discovered with a p value of 0.01002. It is assumed that following the in-service, participants may have become aware of gaps in knowledge regarding this subject, which could have impacted confidence scores. These results indicated that educational in-services can be used in facilities to educate staff regarding dysphagia and feeding interventions. Further research should be implemented to explore results for greater sample sizes.

SLP, Who?: An online vs live training

Presenter: Seiri Corral
Project Advisor: Adrienne Bratcher

The New Mexico Technical Evaluation and Assessment Manual indicates that if a student has a speech or language impairment that affects his or her education performance he or she qualifies for services as having a communication disorder. A speech language pathologist (SLP) is the professional that is responsible for providing services to said students. An SLP is also responsible for collaborating with teachers and school staff and educating them on the function of the SLP in the school setting. Previous research found that teachers reported to not being fully aware of the function of the SLP in the school setting and that they were willing to participate in training programs to increase their knowledge of the disabilities of students in their classroom. The purpose of this study was to to increase teacher's knowledge and perception of the SLP through an online and live training. One hundred and thirty-nine Pre-Kindergarten through 12th grade educators employed by two rural school districts in the state of New Mexico were invited to participate in trainings held by the primary investigator, a Communicative Disorders graduate student at Eastern New Mexico University. Each school district participated in either the live or online training program. Teachers' knowledge and perception was measured using questionnaires provided by the primary investigator. Participants completed a pre-test questionnaire prior to taking part in a training and then immediately following the training were given a post-test to account for gained knowledge and change of perception.

Listen Up Kids: The Effects of Hearing Education in Elementary Students

Presenter: Sarah Keppinger
Project Advisor: Rachel Lingnau
Award Winner

The world has become an increasingly noisy planet. Education on hearing and hearing protection must become a priority in order to decrease the risk of noise induced hearing loss. The purpose of this study was to assess fifth and sixth grade preferred volume level and whether hearing education effects headphone volume levels. The study consisted of a pretest posttest experimental design and participants included 37 fifth and sixth grade students. The pretest was comprised of a short questionnaire and choosing a preferred volume level with headphones on a personal listening device. The students then participated

in a hearing conservation presentation made available by the US Department of Health and Human Services. A posttest was completed immediately after the presentation and a maintenance test was completed three weeks after the presentation. During the pretest the average decibel level that students chose was 75.24. Results from the hearing education found significant difference in decibel levels immediately after the presentation. Decibel levels were slightly lower post three weeks after the presentation. The majority of students did not present with a risk of noise induced hearing loss from headphones; however, lower decibel levels may have been due to the Hawthorn Effect or previous education. Hearing education did make a significant difference between pretest and posttest decibel measures. Further research should focus on larger sample size, using only one song rather than providing two song choices and broadening the assessment of hearing knowledge and protection.

Staying Smart: Parental Traumatic Brain Injury Education

Presenter: Kerri Brewer
Project Advisor: Adrienne Bratcher

A Traumatic Brain Injury (TBI) is a complex injury to the brain in which the brain impacts one or more surfaces of the cranial cavity or a foreign object penetrates the skull and brain. There are numerous ways to sustain a TBI. Certain children are more at risk for sustaining a TBI than other children; therefore, parents should be able to recognize whether his or her child is at an elevated risk for sustaining a TBI. Before the researcher sustained a TBI in 2008, neither the researcher's parents nor the researcher knew much about the causes, symptoms, and potential consequences of a TBI. The goal of presenting this information to parents of young children was to educate the parents and to equip parents to discuss with his or her child the importance of brain safety. The researcher's approach utilized a scheduled meeting time, in which participants completed a pretest, attended an awareness program about TBI, and completed a posttest before leaving. This design was chosen to prevent a low response rate. Attending a TBI awareness program resulted in an increase of posttest scores, resulting in a 29.44 percent improvement from the groups' collective pretest score to the posttest score. While no significant difference was found using a Pearson Correlation, significant difference was found using a repeated measures t-test. Since this study utilized a small sample size, it is recommended that the sample size be expanded to include more participants and parents of children younger than elementary school.

If you're happy and you know it: REFER TO SAT

Presenter: Marisa Chapin
Project Advisor: Adrienne Bratcher

Teachers are the main source of referrals in all areas of communication disorders in the school setting. Children referred for speech-language (SL) evaluations by teachers do not necessarily meet eligibility criterion for services as explained by Botting, Conti-Ramsden, and Crutchley (1997). The study examined teacher's ability to select whether a child should be referred for SL services based on a case study. The teachers were pre-tested, then provided a training by the researcher, and post-tested. The case studies focused on articulation, language, fluency, voice and phonological awareness. A non-equivalent control group of 100 teachers was used which consisted of varying backgrounds, ethnicities, and educational degrees that are employed at elementary schools in Hobbs, New Mexico. These teachers were asked to attend an educational training discussing developmental milestones of children in language, articulation, voice, fluency, and phonological awareness. The information provided from this study allowed the researcher to determine that trainings did increase the accuracy of referrals when provided a case study. Evidence from this study showed that teachers were 49% accurate prior to training and 65% accurate post training. While the results were significant, teachers are not a perfect referral source and further training should be implemented to increase their accuracy.

Poster/Display Presentation Group 11

Hears the Advantage: Testing for Right Ear Advantage Using Monaural Sound Presentation

Presenter: Shaneise Aragon
Project Advisor: Erin Sherman

Right ear advantage is described as an asymmetry for speech processing. This concept is rooted in the fact that language is dominant in the left hemisphere for the majority of people. In this study, participants were randomly assigned to one of two experimental groups, right ear only directed listening or left ear only directed listening. Depending on their group assignment, participants listened to a three-minute short story in one ear. They were then asked to complete a posttest consisting of ten short answer questions based on the audio they heard. Comparisons between the two groups based on their posttest

scores were evaluated to determine if there was a significant advantage for one ear over the other. Posttest scores revealed the right ear group had a mean ear advantage of 80.63% and the left ear group had a mean ear advantage of 81.33%. An independent measures t-test was conducted and revealed there was no significant difference. In conclusion, there was not enough evidence to conclude a difference between the groups to reveal a statistically significant right ear advantage for auditory processing.

Up In Smoke

Presenter: Victoria Cogdill
Project Advisor: Nicole Bougie

Current research indicates that smoking has many negative effects on the human body. Recently, electronic nicotine delivery systems (ENDS) (e.g., vape pens, e-cigarettes, vaporizers etc.) have become a popular nicotine replacement, but little information is available on the effect they may have on vocal health as compared to tobacco cigarette smokers. The purpose of this study is to provide information on the impact of ENDS and tobacco cigarette smoking on vocal quality and function and also inform speech language pathologists (SLPs) about the impact that these habits can have on vocal health. It is important to study because typically smokers are most likely to use ENDS, but almost a third of current users are non-tobacco smokers, suggesting that these devices contribute to addiction and to renormalization of smoking (Mcmillen, Gottlieb, Shaefer, Winickoff, & Klein, 2014). A comparative study utilizing volunteers via convenience sampling was conducted to measure the ratings of 20 cigarette-only smokers, and 20 ENDS-only users on the Voice Handicap Index (VHI) and the voice characteristics as measured by Praat, a free computer software package for the scientific analysis of speech and vocal quality. Participants completed the VHI via self -report and their voice was recorded during sustained phonation of /a/ using the Praat software system on Apple Macintosh OS 10.12.6. Independent measures t-tests were performed on each of the variables and revealed no significant findings between cigarette-only users and ENDS-only users on any of the measures examined.

Are You the Greater Rater?

Presenter: Jana Carn
Project Advisor: Dwayne Wilkerson

The purpose of this study was to compare intelligibility ratings of trained and untrained parent listeners for children with speech sound disorders (SSD). Based on evidence in the literature review, this study will provide further information on the effects of intelligibility rating scores between male and female, trained and untrained listeners. Single word utterances of a child with impaired speech were presented to trained male and female speech language pathologists (SLPs) and untrained male and female parents. All listeners selected from a word bank the word they perceived as the intended word spoken. Selected answers were compared to the actual word spoken and differences were compared. Results from this study indicated that when using a multiple choice selection process of monosyllabic words to determine intelligibility, there is no significant difference between gender and listener experience.

Burning Ammonium Nitrate and Trisomy 18: Are they related?

Presenter: Wendy Contreras
Project Advisor: Suzanne Swift

On July 30, 2009, an ammonium nitrate fertilizer plant exploded in Brazos County, Texas. The next year five infants were born in the county with trisomy 18. The Birth Defects Surveillance and Epidemiology Branch (BDSEB) of the Texas Department of State Health Services determined that these five infants formed a birth defect cluster. This two-part study was undertaken to determine if smoke from ammonium nitrate fires was related to the incidence of trisomy 18 in Texas during years 1999-2013. For the first part of the study, a map analysis was conducted to compare trisomy 18 incidences among low birth rate counties in Texas. This study was inconclusive, but illustrates the difficulties of trying to determine probabilities in spatial cluster analysis. For the second part of this study, records of ammonium nitrate fires in Texas were compared to incidence rates of trisomy 18 by county from 1999-2013. A Bayesian analysis was completed to see if the relative risk for having a baby with trisomy 18 was increased by exposure to the fires. The analysis indicated no increased risk for trisomy 18 for those counties reporting fires in that year or the previous year. However, difficulties with obtaining accurate fire data were encountered. The study could be repeated with more tightly defined fire parameters to see if there truly is no difference in relative risk.

ਪਾਤਸ! Can you assess me now? Non-word repetition accuracy and exposure time in Punjabi speaking English language learners

Presenter: Jaspreet Bains
Project Advisor: Laura Bucknell
Award Winner

Defining a language disorder in the bilingual Punjabi-English population in the United States has proven to be a bit of a challenging topic for researchers. There is a large amount of research that focuses on bilingual language assessment; however, there is little research that investigates children whose first language is Punjabi that may have a specific language impairment (SLI). This is a study cross-sectional, causal comparative study that investigates a child's exposure to English by time and primary language (L1) background. A background questionnaire was given to parents/guardians of children in the study. This questionnaire asked the following questions; primary language spoken in home, age of arrival, months of exposure to English, and gross family income of parents/guardian. The non-word repetition task from the Comprehensive Test of Phonological Processing – 2 (CTOPP-2) was administered. This subtest from the CTOPP-2 was used to compare word repetition scores with exposure time to English and L1 background. Children were put into three categories of exposure to English; less than 12 months, 12-24 months and 24-36 months.

How Does My Job Effect My Voice? A Voice Analysis of Soccer Coaches

Presenter: Celina Garcia
Project Advisor: Karen Copple

The coaching profession is a highly demanding job on a person's voice, which increases the risk of phonotrauma and vocal pathologies. The purpose of this research was to analyze jitter, shimmer, harmonic-to-noise ratio, and fundamental frequency in high school and college soccer coaches and compare measurements to published norms. There is limited quantitative information regarding vocal characteristics in high school and college soccer coaches. This study aims to increase quantitative acoustical measurements, by collecting voice samples of the vowel /a/. Three voice samples were collected and analyzed using PRAAT, a voice analysis software program. A questionnaire was used to obtain information about vocal hygiene and use. The majority of coaches reported that they had never received information about vocal hygiene through-out their coaching career. An average mean was used to find jitter, shimmer, harmonic-to-noise ratio (HNR), and fundamental frequency measurements. Statistical

difference was found in jitter, HNR, and fundamental frequency in both males and females. Statistical difference was not found in shimmer in males and females. The results indicate high school and college soccer coaches have a lack of control in vibrations of the voice, notable hoarseness, and abnormal pitch averages.

Crucial Conversations

Presenter: Amanda Medrano
Project Advisor: Rachel Lingnau

The aim of the present study is to evaluate and compare the speech intelligibility of adults with severe to profound hearing loss, who use cochlear implants (CI) to those who use hearing aids (HA). Speech intelligibility is the amount of speech items that are recognized correctly in spontaneous speech. Efficient communication and social interaction require speech intelligibility. Reduced intelligibility has been found to reduce the quality of life for individuals with severe to profound hearing loss. Despite advances in technology, many individuals with severe hearing loss struggle to produce proper speech (Rezaei et al., 2017). A convenient sample of 3 adults with CI's and 3 adults with HA's were selected to participate as speakers. The 6 participants each recited 15 sentences from the Central Institute for the Deaf (CID) Everyday Sentence List. The participants speeches were audio recorded by the researcher. A 40-minute survey incorporating the audio recordings was developed and presented to 60 untrained listeners. The listener's documented their open-ended interpretations of the recordings on the survey. The listeners were able to receive a cumulative score of 45 in each category based on the accuracy of their interpretation. The standard deviation, mean, mode, median, and range were calculated for each category and were compared. Additionally, a t-test for independent means was done to determine whether there was a significant difference between the intelligibility of the two groups.

Poster/Display Presentation Group 12

Black Girls Matter

Presenter: Katrina Weir
Project Advisor: Darrell Roe

Our society is perceptions by race, gender, and class. Racism is perception driven by stereotypes, as reflected in the word itself. The stereotype starts with the six-letter word racism, which is defined as R- Rejected, A- Angry, C -Condemns, I- Imprisonment, S- Struggle, M -Meaningless. Little girls of color carry these unfair labels from one generation to the next. There is a trend within society, supported by hegemony in media, which perpetuates stereotypes of African American women, limiting their opportunities to step into professional and academic roles (Emerson, 2002). African American women are now pushing back against those limitations and fighting for the change our society desperately needs. For these women to be successful it has become non-negotiable to settle for anything less. Black Girls Matter is not just another hashtag, but is an effort to support African American women in breaking down barriers through education, equal opportunities, and the fight against hegemony within the media. {Terhune, 2008). Falling and getting back up each time has earned African American women the right to demonstrate greatness. True greatness is not defined by skin color or gender, but by the will to keep going despite opposing forces.

Hegemonic Ideology: Women's Suppression by Hegemony

Presenter: Erich Davis
Project Advisor: Patricia Dobson

This research was a qualitative research paper written for a class in the Fall Semester of 2018. The ideology examined within is the concept that men are superior to women because women aren't as capable as a man. However, the literature review uses historical references to heavily dispute this premise.

The presentation will explain some mainstream origins of this ideology as well as feature prominent figures throughout history who have defied this ideology and have exceeded societal. Additionally, historical figures that have promoted the ideology will also be cited in order to demonstrate barriers placed on women throughout time. As well as some social constructs that have served as barriers against the equal rights and protection of women in different sectors of society.

The medium I have chosen is an interactive poster style. I intend to have a display set up at a table that breaks down the topic into the separate categories where women have historically been suppressed or marginalized, as well as historical figures and statistics that counter the limitations placed on women. Additionally, I will be present to provide any assistance with explaining anything on the display itself.

Person-First Language: Does it really put people first?

Presenter: Joy Le Page
Project Advisor: Suzanne Swift

The purpose of the current study is to investigate public perspectives of person-first language as compared to identity-first language. Data was collected from 105 individuals through the use of an online survey. The survey consisted of demographic information questions and two sets of Likert scale questions that collected the survey-taker's preferences among the terms and how appropriate the survey-taker feels each term is to use. Data was analyzed to determine if there were patterns due to demographic information and to the individual terms.

To Be or Not to Be an SLP: Comparing Occupational Satisfaction Across Settings

Presenter: Kylee Kinnamon
Project Advisor: Suzanne Swift

Career satisfaction is one of the most researched topics in organizational behavior and education (Blood, Ridenour, Thomas, Qualls, & Hammer, 2002). There is much information pertaining to school-based speech-language pathologists' (SLP) occupational satisfaction, but limited data is available regarding the satisfaction of medically-based and early intervention (EI) SLPs. The purpose of this study was to compare school-based, medically-based and EI SLPs' self-reported occupational satisfaction. This is important to study because large caseloads, increasing accountability demands, extensive paperwork, and feelings of isolation can lead to "deterioration in quality of care and… reduction in the workforce" (Fimian, Lieberman, & Fastenau, 1991). Participants were recruited via the American Speech-Language-Hearing Association (ASHA) and various SLP forums online via Facebook groups. The Job Satisfaction Survey (JSS) (Spector, 1994) and supplemental survey items were presented in electronic format via Survey Monkey. Survey completion took about 10 minutes. Using an independent-measures analysis of variance (ANOVA) to compare overall JSS scores significant difference was identified in the following areas: setting, caseload size, percentage of time spent on paperwork, time not compensated per week, and other stressors including family and finances. No significant difference was identified between: age, years' experience, and region. Collectively, SLPs are satisfied with their careers and report supervision, communication, coworkers, nature of the work highly.

Never Enough Time in the Day!

Presenter: Sarah Slaton
Project Advisor: Suzanne Swift

Many school-based Speech-Language Pathologists (SLPs) are required to take on large caseloads to address the communication skills of our children in the United States. These SLPs are burdened with large caseloads with or without assistants to treat an array of delays and disorders, such as articulation, language, fluency, AAC, voice, etc. The current research concerning time spent with each student in therapy and optimal dosages of therapy is limited, resulting in treatment that may be less than ideal. Most of the current evidence supports the theme that increased time and frequency in therapy will yield better results in achieving automaticity and retention of the skills acquired through communication therapy. The purpose of this study is to collect data of current practice and lay the groundwork for future research on optimal intensities of therapy. Participants included 203 school based SLPs in public schools, charter schools, private schools, contract therapists and teletherapists. The average time spent in therapy with each individual student indicates an average of 35.51 minutes addressing each type of therapy service each week. The most common frequency demonstrates 61.43% of participants reporting 2x/week at 30 minutes most closely matches their traditional schedule and the average group size is currently 4.47 students. The evidence suggests that caseload size is improving nationally, but the average student is receiving on average less than 18 minutes, twice a week in therapy to improve the skills that they use all day, every day.

Parents of Picky Eaters: What's Eating You?

Presenter: Stacy Martin
Project Advisor: Karen Copple

The purpose of this study was to learn about the parent experience of having children who are picky eaters. A survey was distributed in order to look for correlations between levels of parent stress, openness/willingness to accommodate picky eating and level of/desire for education and training about how to deal with picky eating using a 5-point Likert scale. 238 responses were elicited and Spearman r correlation statistics were used to analyze the results.

Stress Factors and Levels of Stress in Speech-Language Pathology Graduate Students versus Practicing Speech-Language Pathologists

Presenter: Melissa Wilson
Project Advisor: Suzanne Swift
Award Winner

This study examined the levels of stress and types of stressors in working speech-language pathologists (SLPs) compared to students currently enrolled in speech-language pathology graduate programs. Research on the levels of stress in speech pathology graduate students is limited compared to the research on the levels of stress in practicing SLPs. The purpose of this study is to compare these two factors in both populations to determine the highest levels of stress affecting each population. Data was obtained through surveys completed by 63 practicing SLPs and 1,232 students currently enrolled in speech pathology graduate programs. These results are important for graduate students as they leave graduate school and become practicing SLPs.

Do Speechies Love Technology?

Presenter: Hannah Park
Project Advisor: Suzanne Swift

Technology has integrated itself in all aspects of life, and the speech room is no different. This investigation seeks to analyze the perceptions of speech language pathologists regarding technology and its role in the therapy setting. Research has shown that the use of technology can promote efficiency in treating speech and language disorders, and there are more and more technological treatment options and strategies available to therapists for use during therapy. This study seeks to analyze speech language pathologists' perceptions on the usefulness of technology in speech therapy. 47 speech language pathologists across the United States were surveyed regarding their opinion in regards to technology and its role in speech therapy.

Poster/Display Presentation Group 13

Watch This: Improving Articulation with Visual Phonics

Presenter: Audrey Stallings
Project Advisor: Dwayne Wilkerson

The purpose of this study is to compare the difference between two treatment approaches related to the production of target speech sounds during articulation therapy. The production of speech sounds elicited using See the Sound-Visual Phonics (STS-VP) hand gestures with auditory and visual models (Treatment B) were compared to speech sounds elicited using auditory and visual models only (Treatment C). STS-VP is a system of 46 hand cues representing motor production characteristics of spoken English phonemes. Presently, limited experimental research exists demonstrating the efficacy of using STS-VP in treating speech sound deficits. This study used an experimental, single-subject, alternating treatment methods design to assess the results of applying two different methods in the treatment of speech sound disorders in children ages 3-10. Baseline (A) was conducted before applying Treatment B and Treatment C on alternating days for ten sessions. Baseline (A) was conducted again after the completion of all treatment sessions. The overall results comparing the two treatment conditions supported this study's hypothesis that the integration of STS-VP cues would result in greater speech sound production accuracy. Although these preliminary findings support the use of STS-VP in treating speech sound disorders, further research is recommended due to this study's confounding variables and limitations.

Learning Through My Eyes

Presenter: Shannon Kattuvelil
Project Advisor: Karen Copple

Several interventions have been used to teach social skills to children with Autism Spectrum Disorder (ASD). One method that has proven to be effective is video modeling (VM). In addition to video modeling, visual supports and illustrations have also been found to be effective. In the current study, a single subject alternating treatment design was conducted to examine the effectiveness of VM versus picture models (PM) on teaching perspective taking to a twelve-year-old diagnosed with ASD. The participant failed the Sally Anne baseline test, which demonstrated difficulty with perspective taking. Intervention consisted of

fifteen sessions for both treatment types: A, VM was alternated with B, PM based on random sampling without replacement. In order to maintain control between the approaches, three separate social scenarios were created in video and picture forms. For each of the 15 treatments, the participant was asked to randomly draw a social scenario from a box and answer four questions regarding the scenario. While VM showed a higher mean for correct responses compared to PM, a t-test for independent measures revealed that there was no significant difference between the treatments. While a significant difference did not exist, VM and PM have been shown to be effective in teaching perspective taking skills. The PND for video modeling was found to be 86%, while the PND for picture models was 100%. This reveals that both interventions were effective, but PM was slightly more effective.

The Effects of HIppotherapy on a Child With a Speech Sound Disorder

Presenter: Nicole Ezcurra
Project Advisor: Karen Copple

Previous studies had demonstrated that the repetitive movement of a horse's gait was able to enhance motor and sensory neural networks, resulting in increased motor strength and coordination, respiratory function, and somatosensory feedback for individuals with developmental or neuromuscular disabilities. Speech-Language Pathologists (SLPs) implemented hippotherapy as a treatment approach to facilitate the sensory feedback an individual received during treatment. Previously conducted research had shown that not all individuals benefited from traditional articulation therapy approaches, as some individuals had complex motor, emotional, and/or sensory needs that interfered with progress. The aim of this quasi-experimental study was to assess the impacts hippotherapy had on a child who was diagnosed with a severe speech sound disorder. Data were collected before and after an eight-week hippotherapy treatment program using the Sounds-in-Words Subsection of the Goldman Fristoe Test of Articulation-3rd Edition (GFTA-3). The subject's speech sound productions without error (no omissions, substitutions, additions, or distortions), percentage of consonants correct (PCC), percentage of vowels correct (PVC), percentage of phonemes correct (PPC), and the subject's manner and place of articulation of sounds were assessed. A repeated measure t-test was conducted to assess significant differences among the mean scores before and after treatment. An overall statistically significant improvement in speech sound productions was observed ($p<.05$). This finding was used with the intention of providing additional support that the addition of hippotherapy may be an effective alternative treatment approach to improving a subject's speech sound productions.

Up Up and Away with Language: Measuring the Effect on Language through Literacy with Speech Bubbles

Presenter: Amanda Ramirez
Project Advisor: Erin Sherman

The term hyperlexia, as defined by Silberberg and Silberberg (1967), is an individual ability to decode and “”recognize certain words on a higher level than their ability to comprehend and intergrade them.”” Individuals with hyperlexia are not explicitly taught decoding skills, instead learned rules that govern decoding on their own without instruction. Hyperlexia is often diagnosed co-morbidly with a developmental delay, such as Autism Spectrum Disorder. With both Autism and hyperlexia comorbidly existing together, it may be extremely beneficial to use a higher cognitive skill, such as decoding, to help boost a skill that may be impaired, such as language.

This single case study looks at a specific treatment provided to a six years old male, who has shown characteristics of Hyperlexia since the age of three years old and was also diagnosed with Autism at the age of three years old. This study was used to discover whether the use of books containing speech balloons in intense therapy has a positive relationship on expressive and receptive language skills.

Does Distance Matter? Exploring Telepractice Efficacy with an Adult who Stutters

Presenter: Adrienne Wolfersberger
Project Advisor: Suzanne Swift

This study explored a quantitative, experimental, single-subject ABA design focusing on a telepractice treatment model on a fifty-year old adult female with a stutter and no other impairments. With a large need for speech-language pathologists, telepractice is an effective and convenient therapy model making it so that individuals everywhere can receive the speech therapy services they need. Telepractice has been deemed an effective treatment model and in previous research studies has been proven to reduce the percentage of stuttered words and stuttered syllables in adult individuals with a stutter. The effects that a synchronous, telepractice treatment model focusing on stuttering modification techniques has on percentage of stuttered syllables and stuttered words in reading and conversation were investigated through this study.

Amplifying the Facts (Does the Use of Amplification Decrease Vocal Fatigue in One Female Primary School Teacher?)

Presenter: Whitney Cordova
Project Advisor: Karen Copple
Award Winner

Voice problems are a common issue among the educational population due to the high vocal load they experience. Vocal loading can be defined as the stress put on the vocal mechanism from speaking over extended periods of time. Vocal loading can cause the voice to become fatigued (Laukkanen, Ilomäki, Leppänen, Vilkman 2008). The purpose of this study was to determine whether teachers who used amplification while teaching decreased vocal fatigue and their vocal load. One female primary school teacher was recruited for this study, alternating with amplification device and no amplification device between each phase of the research. Results of the study showed no significant difference between maximum phonation time and decreasing vocal fatigue when instructing with an amplification device as compared to no amplification device. There was also no significant difference when looking at limiting the vocal load of the teacher.

Bombard the Brain

Presenter: Dianne Manalo
Project Advisor: Suzanne Swift

Children with phonological disorders constitute a large percentage of the clinical caseloads of speech-language pathologists. Thus, finding the most effective and feasible treatment technique is vital for the suppression of phonological processes. Existing evidence supports the use of auditory bombardment to facilitate correct productions of sounds, and further research shows positive outcomes when a language component is used in phonological intervention; however, this method is still not fully implemented. The purpose of this study sought to determine the effectiveness and efficiency of auditory bombardment stories in the remediation of phonological processes. A single-subject, sequential alternating treatments design was used with a 5-year-old girl diagnosed with a phonological delay. Two comparable phonemes were chosen as target sounds for therapy: f/v without auditory bombardment stories (TX1) and s/z with auditory bombardment stories (TX2). The subject received therapy for thirty-two days for thirty minutes a day. Following all treatment sessions, two repeated measures ANOVAs were used to determine the significance of pre- and post-test scores for each phoneme. A separate independent measures ANOVA

was subsequently used to compare the two types of treatment to each other. The results indicated that although both treatments led to gains in the subject's overall phonological abilities, auditory bombardment stories did not lead to significantly higher change scores than therapy without auditory bombardment. Further research is necessary, with suggestions on using a group design in a school setting and providing more parent training for home programs.

Poster/Display Presentation Group 14

Finding My Voice

Presenter: Jamie Carissa Plata
Project Advisor: Nicole Bougie

The author investigated the effectiveness of transgender voice therapy delivered via telepractice in lowering the pitch of an adult female-to-male (FtM) transgender. A single-subject quasi-experimental design was used to obtain data. Pitch values of vocal productions were collected using the PRAAT software. Pretest and posttest scores were analyzed using an ANOVA for repeated measures. Analysis of the results indicated that the participant's voice was significantly lower before and after the treatment.

Whistle While You Work

Presenter: Lauren Ontiveros
Project Advisor: Adrienne Bratcher

Dementia is a progressive and incurable disease of the mind. As its symptoms gradually increase, there is a steady deterioration of abilities including the capacity to perform activities necessary to live independently. This is frustrating and depressing for individuals who desire to maintain their independence. The purpose of this study is to provide a therapeutic intervention with compensatory strategies to address the difficulties in performing basic activities of daily living (ADLs) that are caused by memory loss and cognitive impairment. One voluntary participant will receive home-based treatment and will complete the intervention program focused on the use of Melodic Intonation Therapy (MIT).

World Class Stuttering Make Stuttering Push Button Easy

Presenter: Madison Criswell
Project Advisor: Suzanne Swift

Objective: This study compared two types of feedback methods designed to improve dysfluent speech and, by extension, quality of life for people who stutter (PWS). This study examined whether haptic feedback proved more efficacious than auditory feedback in reducing dysfluency. This study also compared the ability of each feedback to successfully generalize in naturalistic environments during realistic speaking situations. Methods: To compare posttreatment effects, a mixed-methods experimental study was conducted using a non-randomized single-subject ABA design without a withdrawal during treatment phase and a non-equivalent control design between subjects. Results: There was no statistical significance in treatment effects between subjects. Conclusion: Findings suggested feedback conditions were more effective during structured speech tasks rather than conversational speech with existing variations across individuals.

Can you hear the difference?

Presenter: Shelbi Sexton
Project Advisor: Suzanne Swift

This study investigated the effectiveness of focused auditory stimulation from the Cycles Approach with a child who exhibited a phonological speech disorder. Focused auditory stimulation is widely used as an intervention technique, yet there are inconsistencies in previous studies. The purpose of this study was to determine if this procedure could improve accuracy and discrimination in single word productions of children with speech sound disorders. A single subject simultaneous treatment design was used as part of an intervention approach to examine the effects with and without the use of the focused auditory stimulation. Results of this study revealed that focused auditory stimulation does not have an effect in the remediation of speech sound productions or auditory discrimination.

Emotional Academy (The relationship between emotional intelligence and academic performance in a child diagnosed with Autism spectrum disorder)

Presenter: Ashley Holker
Project Advisor: Karen Copple
Award Winner (Tie)

In this study, the author aimed to increase emotional intelligence in a child diagnosed with Autism spectrum disorders and to determine whether or not their was a relationship between emotional intelligence and academic performance in school. A Single Subject Design (SSD) was conducted with a male aged 9 years. Social/Emotional and academic information was obtained from school records (i.e., individual education plan (IEP), psycho-educational report, and report cards). Pre-test and post-test measures included an evaluation using the TRIAD social skills assessment (TSSA). The experimental phase consisted of the implementation of the Emotional ABC's program. Additional research is needed in the field of pragmatic language and the impact of emotional intelligence on academic performance in children on the Autism Spectrum.

Contrasting a Speech Generating Device and Picture Communication Symbols on a Young Person's Vocabulary Acquisition

Presenter: Jennifer Schlitt
Project Advisor: Karen Copple

This study examined whether picture communication symbols (PCS) or a speech-generative device (SGD) had a greater effect on vocabulary acquisition for a young person with limited verbal language. The secondary focus obtained information via a survey on special education professionals' background and training in augmentative and alternative communication (AAC) and their use of AAC with students. A mixed, quasi-experimental paradigm study was performed. A single-subject, alternating treatment design was used to collect data on an 18-year-old male with apraxia and severe communication deficits. The subject participated in 20 sessions, ranging 20-45 minutes per session. Vocabulary words (20) were chosen by random, 10 using PCS and 10 using an iPad (SGD). The researcher hypothesized that the iPad would have a more significant effect on vocabulary acquisition. Secondly, a qualitative survey with 13 questions related to AAC was created and posted on Facebook forums and sent via email to special education professionals. During the single-subject study, all data were recorded as correct or incorrect for each treatment. Independent t-test results ($t(500) = -2.36$, $p < 0.05$) found there was a significant difference using PCS vs. an SGD

and vocabulary acquisition. Additionally, 110 special education professionals responded to the AAC survey. The majority felt they were moderately knowledgeable in AAC (51%) and 42% believed AAC was 80-100% beneficial to their students. Future research is needed to study the effects of vocabulary acquisition and AAC use with young people and adults with apraxia, and those with other developmental disorders.

Apples or Bananas A Contrast of Therapies for the Remediation of Severely Unintelligible Speech

Presenter: Tori Patterson
Project Advisor: Karen Copple

Communication is vital in order for children to get their needs and wants met. The purpose of this study was to investigate the effect of two different therapy approaches for children with severely unintelligible speech. This single subject alternating treatment design included three male participants between the ages of four to five who lived in rural areas in Eastern New Mexico. It revealed that neither the Hodson's Cyclical Approach nor the Distinctive Features Analysis significantly differed in their effects to remediate severely unintelligible speech. These results have added to the knowledge practicing Speech Language Pathologists (SLP) need to efficiently and effectively treat and remediate severely unintelligible speech.

How One Acronym Might Provide a New Tool for Stuttering Therapy! EFT

Presenter: Jordan Stearns
Project Advisor: Adrienne Bratcher
Award Winner (Tie)

Purpose: This single subject design investigated the Emotional Freedom Technique (EFT) tapping in the field of speech pathology, identified the effects that EFT tapping had on a fifteen year old female and distinguished if there was a relationship between an increase in her self-perception and EFT and a decrease in her stuttering behaviors and EFT. EFT tapping integrates the Chinese meridian system and is said to create a change in behaviors about oneself through tapping on acupressure points; therefore, an EFT tapping program may be a complementary addition to traditional fluency therapy. Method: One fifteen year old female adolescent who stutters, was engaged in a 6-week, four days a week, ABAB withdrawal design for EFT. This design included two pretest/

post-test scales; Characterizing Stuttering: Overt Behaviors and the Overall Assessment of the Speaker's Experience of Stuttering for Teens (OASES-T). These assessments measured self-perception and the impact of stuttering on the participant's life, as well as the severity of her dysfluencies. Results: Quantitative data was collected by calculating a t-test for repeated measures. Qualitative data was collected through the information gathered from the OASES-T pre- and post-testing. Conclusions: An EFT weekly tapping routine could potentially have a positive impact on the self-perception of an adolescent who stutters. The participant showed an increase in self-perception using EFT, however; this study did not witness a statistical correlation yielding a decrease in stuttering with EFT tapping. Further research is required to examine the long-term effects of such a program.

Poster/Display Presentation Group 15

Just Breathe: Pranayama Yoga Breathing as an Alternative Treatment Method for Stuttering

Presenter: Morgan Borup
Project Advisor: Suzanne Swift

The purpose of this study was to investigate Pranayama Yoga Breathing as a possible treatment method for clients who stutter. The researcher looked at the impact yoga breathing had on stuttering through the use of a single subject design conducted with a participant that stutters. The researcher provided instruction on yoga breathing and collected data by analyzing different speech samples including word lists, sentence lists, a reading passage, and spontaneous speech samples. The frequency of stuttering was determined by looking at the percent of syllables stuttered. The subject was also provided with traditional stuttering modification therapy and the results from this traditional therapy were compared with results from Pranayama Yoga Breathing. The results showed that Pranayama Yoga Breathing produced significantly fewer stuttered syllables when looking at sentence lists and spontaneous speech, but the yoga breathing did not produce significantly fewer stuttered syllables compared to the stuttering modification therapy.

Quick Fix for /r/ Remediation? Exploring the Effects of a Speech Buddy Tool During Drill Therapy

Presenter: Katherine Barnett
Collaborator: Madison Criswell
Project Advisor: Laura Bucknell

The /r/ phoneme is a challenging sound to remediate. Often, children do not make substantial progress on /r/ sound placement when provided traditional speech therapy. Several studies indicated the efficacy of the /r/ Speech Buddy Tool when compared to traditional therapy, but its use during drill therapy remained to be explored. Therefore, the purpose of this study was to determine the effectiveness of an /r/ Speech Buddy Tool during drill articulation therapy. This study aimed to benefit speech-language pathologists and their clients by providing a more efficient approach to /r/ remediation. An ABAB single subject design with two /r/ impaired school-age children, one experimental and one control subject, were used to facilitate the experiment. Baseline and post-testing measures through the Secord Contextual Articulation Tests (S-CAT) gauged each subject's progress throughout treatment. Subjects were provided treatment with or without the /r/ Speech Buddy Tool 4 times per week for 20 minutes each session and a total of 7 weeks. The results of the study indicated both treatments increased /r/ accuracy placement, with neither treatment working better than the other. This indicates that SLPs, their clients and parents could utilize either treatment type and obtain similar outcomes. Further research needs to be conducted to determine the effectiveness of the /r/ Speech Buddy Tool. A broader study with an increased sample size of matched subjects with the same age, temperament, and speech sound disorder history should be performed.

Using What You've Got: Pacing Boards for Increasing Utterance Length

Presenter: Rebecca Lodato
Project Advisor: Erin Sherman

Clinical decision making for ethical and effective treatment relies on a Speech-Language Pathologist's (SLP) use of evidence-based practice. This study intended to fill the gap in research regarding a well-known and widely used therapy tool and answer the following questions: (a) Do pacing boards increase the effectiveness of traditional language therapy in the pediatric population? (b) What is the statistical significance of auditory + visual + motor cues in the pediatric population? A single-subject experimental design was conducted to analyze the effectiveness of pacing boards in increasing mean length of utterance (MLU). One

subject, three years of age, received language therapy by means of an alternating design. Evidence-based intervention, such as expansion, recast, and modeling was alternated with and without the use of the external cue of pacing board. Therapy was conducted four days a week for the duration of eight weeks. Fifty-utterance language sample analyses were conducted for weekly data tracking of MLU. Results indicated a significant increase in MLU over the course of the study; however, alternated treatments were not significantly different. Treatment with and without the pacing board proved to be complimentary, increasing MLU by 1.8 morphemes in eight weeks. Future research would benefit from an experimental and control group with an increased length of study to allow for more data.

Do you mind? Exploring the effect of mindfulness exercises on tantrums and other challenging behaviors in a child with Autism

Presenter: Maria Veronica Lardizabal
Project Advisor: Linda Weems

Currently, there are 1 in 68 school-aged children who have been diagnosed with autism spectrum disorder. Epidemiological research indicates that the prevalence of autism spectrum disorder is gradually increasing. Children with autism have markedly more frequent tantrums than their same-aged, neurologically typical peers. Adherence to behavioral patterns and issues with cognitive processing often make children with autism feel overwhelmed, thus, causing them to have more frequent tantrums. Applied behavioral analysis (ABA) is the current and primary intervention utilized to treat the challenging behaviors of children with autism. Emerging research regarding mindfulness-based techniques suggests that these techniques may be effective in decreasing challenging behaviors in children with autism. This current research seeks to investigate the effectiveness pre-ABA therapy mindfulness exercises have on decreasing tantrum behaviors, and other challenging behaviors, during ABA therapy sessions on a child diagnosed with autism spectrum disorder.

Say What You Hear

Presenter: Taylor Reilly
Project Advisor: Suzanne Swift

Limited research has been performed regarding the benefits of using phonological awareness therapy to treat childhood apraxia of speech (CAS). Evidence shows that children with CAS show deficits in phonological awareness

tasks. Treating these deficits may help decrease characteristics of the disorder and improve intelligibility. This paper aims to compare the effectiveness of using a traditional apraxia of speech approach to a traditional apraxia of speech approach combined with phonological awareness intervention to treat CAS. A quantitative single subject A-B-B-B-A-C-C-C-A alternating treatments withdrawal design was used. One female aged 7 was treated during 30-minute sessions, 5-times-a-week, for 9 weeks. Results of the study indicated that using a combined treatment approach did not reduce the overall characteristics of the disorder or increase intelligibility when compared to a traditional apraxia of speech approach.

Music to My Integration

Presenter: Camille Hernandez-Morris
Project Advisor: Rachel Lingnau

Dysregulation due to sensory sensitivities is on the rise. The negative behavioral consequences that arise in social situations due to the responses to these sensitivities needs to be proactively addressed. Research studies have demonstrated a significant impact of music on improvements in mood and behavior. This study investigated the behavioral effects of music exposure in the classroom in preschool children with sensory sensitivities. This study utilized a quantitative, single group, ABA design. The participants were four preschool children with sensory sensitivities who demonstrated observable maladaptive behaviors. An ANOVA for repeated measures was calculated to analyze the results. Results indicated that there was no significant difference in the maladaptive behaviors of children when music played in the classroom.

Facilitating Independence for Adults Who Stutter: The Effect of Maintenance Programs on Long-Term Fluency

Presenter: Kayla Lee
Project Advisor: Suzanne Swift
Award Winner

Purpose: This single-subject study aimed identify the importance of speech-language pathologists facilitating the independence of clients who stutter for continued success beyond the therapy room. Although improvement of fluency, for persons who stutter, during treatment is well-documented, maintenance of fluency post-treatment is far from the norm. 84% of persons

who stutter relapse despite improving fluency during treatment with a speech-language pathologist (National Stuttering Association, 2012).

Methods: The participant completed 6 weeks of daily fluency intervention. Fluency and quality of life measures were recorded before and after intervention. The participant then completed six months of a self-maintenance program; the participant's fluency and quality of life measures were recorded after three- and six-month points of the maintenance phase. Fluency was measured by percentage of syllables stuttered (%SS); additionally, the participant completed quality of life measures using the Overall Assessment of the Speaker's Experience of Stuttering (OASES).

Results: Analysis of pre and post-test records revealed significant increase in fluency and quality of life ratings from intervention. Analysis of the initial post-test and two baseline post-tests revealed no significant decrease in fluency or quality of life measures.

Conclusion: The results suggest the effectiveness of both speech therapy intervention for the increase of fluency and self-maintenance programs for the long-term maintenance of improved fluency This study supports the use of maintenance programs as an effective method of facilitating the independence of adults who stutter for fluency lasting far beyond the therapy room."

Poster/Display Presentation Group 16

Can you Picture it? The Study between Augmentative and Alternative Communication (AAC) Devices with and without a Motor Planning Component

Presenter: Cassandra Sierra
Project Advisor: Linda Weems

The purpose of the study was to determine if there was a significant difference in completion rate of identification tasks between AAC devices with and without a motor planning component. It compared the time it took 9-12-year-old elementary school aged males to complete a series of communication tasks on two different high tech AAC devices. The Language Acquisition through Motor Planning (LAMP) application (app) was chosen as the motor planning component, and Proloquo2go was chosen as the non-motor planning component. The methodology included an independent measures t-test with experimental groups that consisted of 15 boys who completed selected word sequencing tasks on both devices. A criterion was established which consisted of no previous knowledge or experience using either apps, and boys from 9-12 years of age without previous diagnosis of Autism Spectrum Disorders (ASD). The utterance list comprised of

phrases and sentences. Results indicated that there was significant difference between the time it took to complete communication tasks on Proloquo2go (M = 284.07, SD = 83.98) versus LAMP (M = 532.87, SD = 165.53) high tech AAC devices. Participants scored significantly faster when identical set utterance tasks were implemented on the Proloquo2Go app than on the LAMP app, $t(28) = 5.19$, $p < 0.00001$, $d = 1.89$. The conclusion indicated that it took less time to complete communication tasks when using the non-motor planning component app, than using the motor-planning component app. Further research is needed to support current findings.

Help Me Remember!

Presenter: Mallory Massey
Project Advisor: Erin Sherman

This research compared the effects of classical musical rhythm on an individual's short-term memory recall when Alzheimer's disease is present.All 15 subjects were over the age of sixty-five, had a probable diagnosis of Alzheimer's Disease (AD), and lived in the same assisted living facility. The study was used a withdrawal design. Week one the subjects were pretested, week two they were exposed to therapy without music, week three therapy was provided with music, week four therapy was provided without music, week five therapy had music and week six consisted of post-testing, with and without music. Pre-test and post-test weeks, the subjects were presented three cards per category with no music on day one and two and with classical musical day three and four. During the four weeks of therapy, subjects were presented with colors Mondays, shapes Tuesdays, numbers Wednesdays and letter Thursdays. During weeks three through five, therapy that consisted of "I say, we say, you say". The researcher would say the cards in order, then the subject and researcher would say them together, followed by the subject saying them. After a minute,cards were then taken, shuffled and handed back to the subject. The subjects were asked to place the cards in the original order they were presented in. This process occurred for all 16 sessions of weeks 2 through 5. The sum of scores for both music and no music for each subject were calculated. The scores were then compared in dependent and independent measure t-tests.

Puzzling the Brain with Vocabulary Games

Presenter: Paige Thompson
Project Advisor: Karen Copple

The population's life expectancy has increased due to advances within medicine. Research has suggested that the prevalence of cognitive disorders has also increased. When the brain changes with age, it can cause cognitive skills to decrease. These cognitive changes can impact a person's quality of life and can be expensive to treat. The increase in brain games available to the public has encouraged the idea that leisure activities can provide stimulation to keep the brain healthy. Crossword and word search puzzles were selected as the leisure activities for this study, because of their popularity, commercial availability, and inexpensive cost. The purpose of this study is to see if inexpensive leisure activities, such as crossword and word search puzzles, can provide enough cognitive stimulation to slow the age-related cognitive decline in the healthy retirement population. Participant criteria included individuals aged sixty-five or older with healthy cognition/overall health in the surrounding St. Louis area. The study is an experimental pre-test/post-test group design. All participants were given an informed consent and a case history questionnaire, with a randomly assigned number on top. Randomization of the Peabody Picture Vocabulary Test-4th Edition (PPVT-4) forms were used as a pre-test/post-test. All groups were randomly assigned participants and the level of difficulty of the stimulus items were selected by participants. The results suggested there was no significant difference between experimental and control groups regarding vocabulary growth.

To Sing or Note to Sing: Do Vocal Warm-Ups Impact Vocal Range?

Presenter: Toni Saldana
Project Advisor: Karen Copple
Award Winner (Tie)

Studies based on vocal warm-up with choir singers were gathered to determine the effects of vocal warm-ups on vocal range. The study tested the vocal range in 40 choir members: 10 sopranos, 10 altos, 10 tenors, and 10 basses. Before the study, the participants were given a questionnaire asking various questions about their vocal condition for the day. Vocal range was tested with the assistance of a pianist with a bachelor's degree in music, by using the piano to play half notes scaling down to the singers' lowest comfortable note, then scaling up to the singers' highest comfortable note. Data were collected of each participant's vocal range. The participants were split up by voice type then divided randomly into two groups: the experimental group and the control group. The experimental group proceeded with a ten-minute vocal warm-up led by the pianist. A post-test of all the participants' vocal range was taken. Results indicated that there was no significant difference between the experimental and control groups; vocal warm-ups did not significantly affect vocal range.

Do You Recall? The Effects of Tactile Manipulatives on Story Recall

Presenter: Lauren Rodriquez
Project Advisor: Karen Copple
Award Winner (Tie)

This research study examined whether tactile manipulatives during reading increased story recall. Traditionally, preschoolers are read to with verbal and visual input but not provided with manipulatives to touch and associate with the story. Six classrooms were involved at Parkview Early Literacy Center. Three classes were read a book with just verbal and visual input. Three other classes were read the same book with the addition of tactile input. This involved passing around manipulatives referenced in the story and allowing the students to touch the manipulatives. After listening to the story, each child was asked to answer five closed form questions about the story. Scores were awarded for each story detail the child recalled. The data were analyzed using an independent measures t-test. Raw scores revealed that the experimental group was able to recall slightly more details than the control group; however, no statistical significance was found.

Reading in the Digital Age (Technology Versus Paper: The Study of Reading Comprehension in Fifth Grade Students)

Presenter: Sydney Parker
Project Advisor: Adrienne Bratcher

The overall purpose of the study was to research the reading comprehension effects of 5th grade students who read on technology based material versus paper based material. Due to an increase of technology in society, student's reading methods and reading comprehension levels were affected. The study included 5th grade, regular education students, and it was a randomized control study. Students were randomly assigned a reading passage, which was presented on a technology based format or presented on a piece of paper. Following the reading passage, the students were assigned a questionnaire that pertained to the reading passage. There were ten questions within the questionnaire, which included five multiple choice questions and five open-ended questions. Following statistical analysis, there was no significant difference between students who read the reading passage on a technology based format (i.e., laptop) versus paper based format. However, it was found students who read the passage on paper had a larger number of high scores compared to the students who read the passage online. A contributing unknown variable that may have impacted the outcome of the study was the students awareness of how their

performance on the questionnaire would not impact their class grade. Therefore, some students may not have taken the study as seriously as others. Further research for this area would be beneficial, because technology effects a child's reading comprehension and overall a child's education in today's society.

Poster/Display Presentation Group 17

POWERpoints: Strengths in Presentation

Presenter: Lisa Homer
Project Advisor: Suzanne Swift

PowerPoint presentations are often used as a teaching tool, but how they are used varies greatly. The focus of this study is to determine if one method of presentation proves to be more effective than another when introducing new information to college students. An experimental design will be implemented by using three different groups of college students enrolled in a summer CDIS course at Eastern New Mexico University. A non-class-related topic, "Snakebites in the United States," is chosen as the subject material. Students are to be given a pre-test consisting of ten content-related, fill-in the blank questions to determine prior knowledge. The presentation for group one will consist of slides without visuals that will be read word-for-word. Group two will be presented with slides that include pictures, but very limited verbal information will be given. The presentation for group three will contain slides with bullet-points referring to the main idea, and the presenter will elaborate on topic points. After each presentation, students will complete a post-test consisting of ten content-related, fill-in the blank questions.

"Pitch-ure" this: Effects of Vocal Pitch on Memory

Presenter: Emma Duffy
Project Advisor: Karen Copple

This study explored the effect of a speaker's pitch range on content memory in people ages 18-25. This study was conducted online using Google Survey. In this study, there were 2 experimental groups. The research design of this study was a one-shot case study. Each group received a pre-recorded audio message with 1 of the 2 speakers. The speaker's pitch ranges were as followed: low pitch range (a synthetic male voice) and a high pitch range (synthetic

female voice). All participants were randomly assigned to 1 of the 2 groups. Immediately following the audio recording, participants were asked to fill out a quiz comprised of multiple-choice questions over what they have retained from the clip. Immediately following the quiz, participants were given a questionnaire that asked questions regarding any previous knowledge on the topic. Results from this study were analyzed using a t-test for independent samples. Results were analyzed to determine if a relationship exists between pitch of a speaker's voice and information retention. Further, results yielded information regarding gender of the participants and gender of the speaker in information retained. Results from this study could have a potential impact on how speaker's present information in order to increase retention.

Speech Intelligibility of International Civil Aviation Organization Spelling Alphabet Versus Standard American English During Radio-Transmission

Presenter: Jennifer Nielsen
Project Advisor: Nicole Bougie

Clear radio communication is essential to safe and successful operations in many work environments. Radio communication is comprised of two parts: the physical instrumentation and the human operator. Although steady improvements have been made to the instrumentation of radio communication, the impact of human variables requires further investigation. The civil aviation industry developed the International Civil Aviation Organization's (ICAO) spelling alphabet to improve radio communication effectiveness. Use of the ICAO system constitutes a speaker-based modification to improve speech intelligibility. This post-test only control group experiment (n = 33) examined if use of the ICAO spelling alphabet increases speech intelligibility of cardinal numbers during radio communication. Results did not show a significant increase in speech intelligibility when ICAO numbers were spoken.

Smell The Rainbow

Presenter: Cassidy Stradling
Project Advisor: Adrienne Bratcher
Award Winner

The purpose of this study was to explore the effects of adding scent to increase the intake of thickened liquid. Dehydration is a vast problem for individuals who are diagnosed with thickened liquid diets. A mixed-methods

experimental design was used to determine the effects of adding scent while drinking thickened water to see if it was more desirable than drinking thickened liquid from a traditional cup. Fifty participants completed questionnaires about their attitudes towards drinking thickened water from both a traditional cup and a scented cup. A t-test of repeated measures was used to calculate the results from the data collected. Results: There was statistical significance between drinking thickened water from a traditional cup and The Right cup. Conclusion: Findings proved that drinking thickened water from The Right Cup increased an individual's desire to drink thickened liquid as opposed to a traditional cup.

Tough to say, Hard to swallow

Presenter: Gabrielle Jordan
Project Advisor: Nicole Bougie

This research aimed to identify the relationship between increased knowledge of the swallowing process and the increased awareness of vocal hygiene, on individuals with a medical diagnosed of Scleroderma. Scleroderma is an autoimmune rheumatic disease that causes the overproduction of collagen in the soft tissue of the body. Participants: The participants selected were from a local support group which consisted of 13 females and 2 males. The support group met at a local Community Center the first Saturday of the month. Methodology: This study was conducted over a 6-week period which included a presentation of strategies, printed handout, pre-test, and post-test surveys, recording using the PRAAT and reading the grandfather passage. Conclusion: There was statistical significance with the increase of Quality of Life pertaining to the participants swallowing. The PRAAT indicated a statistical significance in the decrease in Shimmer while no statistical significance was noted for Jitter. The GRBAS indicated a statistical significance pertaining the vocal quality produced during the reading of the Grandfather Passage. There was no statistical significance of an increase of Quality of Life measured through the Voice-Related Quality of life.

The Fusion of Inclusion: Integrating Regular Education and Special Education Students

Presenter: Kalin Day
Project Advisor: Suzanne Swift

Research has shown that educational integration is beneficial for students with moderate to severe disabilities in numerous ways. Does co-education benefit typically learning children as well? To investigate this phenomenon, this study integrated 15 typically developing 4th grade learners with atypically developing learners with moderate to extensive needs during three 30-minute sessions (one-group pre-test/post-test design). Descriptive data revealed positive trending data, and a repeated measures t-test also showed that typically developing learners gained significant benefit from their integration experience. Likert scale questions showed increasing positive perspectives regarding others who differ from self, as well as increased knowledge about persons with disabilities. Typically developing learners increased their social interaction skills with students receiving special education services during and following the integration periods.

Poster/Display Presentation Group 18

Generation Z's – Instant or Delayed Gratification?

Presenter: Sarah Dohy
Project Advisor: Adrienne Bratcher

Motivation is the stimulation of active interest in an individual by appealing to their interests (Jackson, 1964). There are many different types of motivation, two of which will be addressed in this study; instant gratification and delayed gratification. This study seeks to understand which form of motivation is more effective for individuals in Generation Z. The sample for this study consisted of 60 Generation Z individuals, with 30 placed into one of two groups; instant and delayed gratification. A pretest was given in the first session, consisting of no reinforcement, and an experimental posttest was given in the second session. During the second session, each group was given an elementary level math worksheet to complete and was provided reinforcement in the form of instant or delayed gratification. The mean task scores of each group were then compared using a t-test for independent measures to evaluate which gratification resulted in greater gains. The pre-test and post-test for each group was also analyzed to find statistical significance for each treatment using a t-test of repeated measures. The results found that there is no significant difference between the change scores of the delayed and instant gratification treatment groups and no significant difference between the pre-test and post-test scores of the delayed gratification treatment group. However, results did find significance between the pre-test and post-test scores for the instant gratification treatment group.

Don't be Fooled by Color (Does Color Affect Memory for Sight Words in Beginning Readers?)

Presenter: Randi Wood
Project Advisor: Karen Copple

Sight words have been an important skill in an individual's reading abilities. If an individual was unable to read or unable to read fluently with limited comprehension, it could affect all content areas. Sight word instruction can increase fluency, comprehension, and memory skills. Research has shown that the ability to recall words can be increased when color is presented. The age at which children enter school and learn to read is intuitively an important factor in developing reading achievement (Suggate, Schaughency, & Reese, 2012). The aim of this study was to examine the affect that colored paper had on memory retention. This causal comparative design measured the significant effect of memory retention with red and blue paper compared to white paper. This study included a pretest, four weeks of treatment, and a posttest. Results revealed there was no significant effect on increasing memory retention when using red and blue paper compared to white paper when learning sight words.

Drink Up! Water for Thought

Presenter: Elizabeth Griego
Project Advisor: Linda Weems

Many older adults are not consuming enough water which puts them at risk for dehydration and impaired cognitive function. This study examined the effect of hydration on the short-term memory capabilities in healthy older adults. The methodology of this study followed a quasi-experimental within-subjects research design using a pretest-posttest model. Data was collected from a sample of 15 healthy females between 50 to 65 years old. Participants were tested individually at their home on two separate days under two different conditions; normal (no additional water) and drinking additional water. Participants were tested using a recall list of 12 words. A different list was used for each testing condition. Statistical methods were used for the analysis of the results. The results of the test did not show statistical significance between hydration and short-term memory capabilities before and after consuming additional water.

Just say "AH" Acoustic Measurement of Pertrubation Changes with Vocal Loading in Older and Younger Females

Presenter: Rebecca (Dewbre) Temple
Project Advisor: Karen Copple

The purpose of this research was to identify the relationship between age and vocal quality of shimmer and jitter after a vocally loaded task. Fifteen women aged 18-25 were chosen as well as fifteen women aged 60 and above. All participants completed a survey in order to control for confounding variables. The participants were asked if they smoked, drank, or abused their vocal system regularly (e.g. yelling, acting, or teaching.) Following the survey, participants read a passage for forty-minutes while exposing them to "cocktail" noise at 70dB. Speaking with noise makes the reading task much more difficult because on the force needed to overcome the noise signal, so this type of reading was a vocally loaded task. Acoustic measurements of shimmer, jitter, harmonic-to-noise ratio, and a respiratory measure of vital capacity were obtained before and after the vocal loading task. Statistical measures indicated that their was a significant difference.

Emojis: Just Another Distraction or a New Teaching Tool? – A Pilot Study

Presenter: Kelly Tanner
Project Advisor: Karen Copple
Award Winner

The purpose of this study sought to determine if common digital images such as the emoji can be used to increase vocabulary acquisition. The researchers examined a group of 65 students between the ages of 14-16 years old. Participants were enrolled in a mainstream 9th grade English course and were beginning to prepare for the Scholastic Aptitude Test (SAT). All students were from the surrounding area of Minneapolis, MN. Informed consent and assent were obtained and confidentiality was maintained by assigning an alphanumeric code to each participant. The pre-test presented participants with 33 vocabulary words with four multiple choice answers. Following the pre-test, instruction was given for three days to both groups. The experimental group was given a modern visual aid (emoji) paired with each word's definition while the control group was given only the definition of each word. A post-test was completed following instruction and gain scores were examined. Results showed no significance between emojis and vocabulary acquisition.

Work it out! - The Immediate Effects of Moderate Exercise on Working Memory

Presenter: Jasmin Salcido
Project Advisor: Nicole Bougie

This study aimed to focus on the effects of moderate exercise on working memory. Sixty individuals were divided into control and experimental groups using a quantitative experimental design. Groups were given a pre-test consisting of a memory task (e.g. digit sequence) before walking for an interval of twenty minutes. The experimental group immediately received the memory task after walking while the control group had a delay of twenty minutes before completing the post-test. Results suggested that there was no increase of working memory on the experimental group and were non-significant than that of the control group.

Poster/Display Presentation Group 19

Discouraged & Distressed: The Emotional Stroop Effect & Depression

Presenters: Crystal Jones and Samantha Ford
Collaborators: Desirae Montoya and Sara Casillas
Project Advisor: Gary Bond
Award Winner

Stroop (1935) studied the effect of interfering color stimuli upon reading names of colors, interfering word stimuli, and interference. A variant of the Stroop test, studying cognitive bias using threat words, called the Emotional Stroop Test. Words reflecting depressive symptoms were extracted from the Affective Norms for English Words (ANEW; Bradley, & Lang, 1999) using valence mean of 4.0-5.0 for baseline and a valence mean of 2.0 and below for interference words (lower valence words were more negative). The hypothesis predicted that participants who score higher on a depression scale will have slower reaction times when depression-related words are presented to them. The study included 21 participants (12 women, nine men), students from Eastern New Mexico University, registered in Introduction Psychology courses, and ages ranged from 18 to 26 years (M = 19, SD = 2.38). Participants were administered the Center for Epidemiologic Studies Depression Scale (CESD-R-10; Radloff, 1977) to measure depressive symptoms. A median split on scores from the CESD-R-10 was conducted allowing participants to be placed into high or low depression groups. Difference scores were created by subtracting interference times from baseline condition times. Results of an independent samples t-test showed no significant

difference between high depression (M = 1.16 SD = 1.22) and low depression (M= 1.67, SD = .55) groups on the dependent variable, t(19) = 1.31, p = .21.

Frustrated, Failure, & Fear: The Emotional Stroop Effect & Anxiety

Presenters: Elizabeth Acosta and Lucia Campa-Hinojos
Project Advisor: Gary Bond

The Stroop Effect (Stroop, 1935) measures a person's selective attention and processing speed ability in interference conditions. The Stroop test was a three part experiment that studied the effect of interfering color stimuli. This was accomplished by reading the color of the words serially, naming the color of the word, and the effects of practice upon interference. The Emotional Stroop test which studies the cognitive bias using negative words is a variant of the original Stroop test. To conduct the study 21 participants from introductory psychology classes participated. They were administered a brief measure that assessed Generalized Anxiety Disorder (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006). A median split on scores on the GAD-7 was administered placing participants into high or low anxiety groups. The dependent variable was found from taking the average baseline condition times subtracted by the interference condition times to create a difference score. Results of independent samples t-test showed that there was no significant difference between low anxiety difference scores (M = 0.69, SD = 1.71) and high anxiety difference scores (M = 0.61, SD =0.41), t(20) =0.14, p = 0.89. The results do not support previous research in which people with higher anxiety perform slower on the interference condition. However, results show a significant difference between baseline (M = 5.77, SD = 1.27), and interference (M = 6.42, SD = 1.42) condition means, t(2) = -2.31, p=0.031, supporting the original Stroop Effect.

Misppeled or Misspelled?

Presenters: Chantel Sanchez and Ahsha Vigil
Collaborator: Charis Mote
Project Advisor: Gary Bond

Signal detection theory (SDT; Green & Swets, 1966) measures a person's sensitivity to a stimulus and their bias in decision making under uncertain conditions. SDT has been used in many psychological and psychophysics studies throughout the years to measure one's ability to detect visual and auditory stimuli, detect lies, make decisions about whether memories are true or false,

and other areas of inquiry. A common application of SDT is a hearing test in which a participant's ability to detect sounds being played through a headset is assessed. In the current study, 21 participants (12 women, 7 men, 2 unknown genders) who were students in Introductory Psychology classes at Eastern New Mexico University were asked to identify whether 24 commonly misspelled words (English Oxford Living Dictionaries, 2019) were spelled correctly or incorrectly. Participants responded with a yes or no decision to the question, "is this word spelled correctly?" Results indicated that participants' decision making bias was slightly liberal ($\beta = -0.48$) and they performed well in distinguishing if words were spelled correctly ($d' = 1.03$). Participants incorrectly identified a correctly spelled word as misspelled only 40 out of 504 times, indicating that either the words were too simplistic, or that University students perform well in spelling. Future research could employ more advanced vocabulary words versus simple words. Shorter exposure time to the commonly misspelled words may also test whether the simplicity of the vocabulary has any effect.

Attention: Emotional Stroop Effect

Presenters: Federico Solis-Perez and Kelsey Johns
Collaborator: Hannah Suit
Project Advisor: Gary Bond

Stroop (1935) conducted several studies on the topic of inhibition and attention that is widely cited in the field of psychology. His experiments studied the effect of interfering color and word stimuli upon naming colors serially. Today, the Emotional Stroop Task is used to study cognitive bias by using threat words instead of color names. The current study was conducted to see if participants would have slower reaction times to the interference slide that included depressive words. There were a total of 21 participants (12 women, nine men) enrolled in Introductory Psychology courses at Eastern New Mexico University that participated in this study. They were administered a Center for Epidemiologic Studies Short Depression Scale (CES-D-R 10; Radloff, 1977.) A median split on scores on the CES-D-R 10 was conducted which separated participants into low or high depression groups. Dependent variables were derived from subtracting interference condition times from baseline condition times. Results of an independent samples t-test showed that there was not a significant difference between the low depression ($M = 1.4$, $SD = 1.14$) and high depression ($M = 0.9$, $SD = .61$) groups on the dependent variable, $t(20) = 1.132$, $p = .121$. Our findings are similar to other emotional Stroop experiments that used depressive words as a stimulus in the interference condition.

Signal Detection Theory: Celebrites Incarcerated

Presenters: Gina Arellano and Alizae Hernandez
Collaborators: Fantasia Dennis and Celina Stroup
Project Advisor: Gary Bond

A person's bias in decision making, especially under uncertain conditions, can be measured using Signal Detection Theory (SDT; Green & Swets, 1966). It can also be used to understand a person's sensitivity to certain stimuli. Since SDT was first introduced, numerous studies and a great amount of research has taken place to better understand this phenomenon, which has contributed greatly to real-life applications of SDT. In the current study, 26 Introductory Psychology students (eight men, 18 women) at Eastern New Mexico University participated by answering "yes" or "no" when looking at pictures of 24 celebrities and deciding if they had been to jail or if they had not been to jail. Of the 24 celebrities presented to participants, 12 had been to jail and 12 had not. Results indicated that there was a conservative bias in participants' decision making ($\beta = 0.369$). Most participants said "no" for almost all of the celebrities when asked if they had been to jail, resulting in more correct rejections, but also misses. This created unsatisfactory performance in discriminability ($d' = 0.267$). In the future this research, particularly the discriminability, could possibly be improved by clarifying to participants that the amount of celebrities that have been to jail and the amount that have not are equal.

Anxiety and The Emotional Stroop Effect

Presenters: Caydence Sisneros and Cassandra Martinez
Collaborators: Jaci Sievers and Miranda Sando
Project Advisor: Gary Bond

The Emotional Stroop Effect involves slower responding to one task (naming a color) than reading depression words (Janczyk, Augst, & Kunde, 2014). In this experiment there were 21 participants enrolled in Introductory Psychology courses at Eastern New Mexico University (12 female, 9 male). The age range for the females were 18-25 and the age range for the males were 17-26. Participants filled out a Generalized Anxiety Disorder scale (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006). They filled out a demographics form with their age and gender, as well as giving their consent. Each participant viewed in PowerPoint five slides containing neutral or interference words either in black or white or color from The Affective Norms for English Words (ANEW; Bradley, & Lang, 1999). Participants were timed on how quickly they read the word or color. A median split on scores

on the GAD-7 was conducted and put participants into either high or low anxiety groups. To create a dependent variable the inference condition was subtracted from baseline times. Results showed that there was a significant difference between the means of averaged baseline condition (M=6.56, SD=1.35) and the interference condition (M=4.53, SD=1.36), t(20) =4.66, p=.0001. This result was opposite from what was expected. The results may be due to having more difficult words in the baseline trials and easier words in the interference condition.

Poster/Display Presentation Group 20

The end of the Aztec "TEQUATLASUPE"

Presenter: Irene Landa
Project Advisor: Alla Parsons

The Mythology of the Aztecs takes place 40 years after the discovery of America by Colon and 10 years after the conquest of Mexico by Hernan Cortez. The Aztecs lived in a town built of beliefs and religions. Which from the moment the women got married, they would collect their hair, based on a property sign. The Aztecs were astronomers and thought that the universe was the one who gave them life, so they had a bloody religion. Huitzilopochtli (cannibal) defined as the Aztec sun and the god of war, fed from the entrails of the victims instead of eating in the sun. The Aztecs were convinced that it was the only way for the sun to rise again the next day. For them it was a sacred ritual, to carry out the human sacrifices. On the other hand, there was his mother, Coatlicue with two snakes that came out of his head, others in his hands, with claws on his feet and a skirt of snakes. But above all it wore a necklace of small skulls, being obtained by the sacrifices of pregnant mothers, they removed the fetuses to them, they dried the heads of the fetuses and with the skulls adorned to Coatlicue. His temple was located on El Monte Tepeyac, just where the Virgin Mary chooses to appear. Dominated, as well as TEQUATLASUPE the one that crushes the snake.

Still Here

Presenter: Raven Lente
Project Advisor: Alla Parsons
Award Winner

"Still Here" is the first painting of a longer series that speaks a message about the fight against mental illnesses. Very often we are told that what we experience is simply in our head and not real. So I decided to depict how disabling mental illness can be by painting subjects that are completely headless. In "Still Here" specifically, a headless person is depicted with their back to a wall, graffiti can in hand and a thought bubble painting behind them and the show of a head. Three lines of light stretch across them with the symbolism of being being bars, further expressing this idea that mental illness is a burden. However despite the grim environment, the words "Still Here" are written in the thought bubble to show that no matter how dark things can be, you can still push forward, be here, and not give into thoughts of suicide.

La Casita

Presenter: Vanessa Miranda
Project Advisor: Alla Parsons

My art is a reflection of myself and my life, either past, present or future. Each painting is a narrative, where making myself the main subject of my art it gives me the opportunity to look at the events in my life from an outsider's perspective, thus allowing me to better understand myself. Oil paints are my medium of choice. I feel that oils are much like clay in the sense that an artist can manipulate it in a variety of ways. I paint layer by layer, starting with thin underpainting, similar to Old Masters technique. At times I use the wet on wet technique when I wish to blend colors or add texture to my paintings. I develop my backgrounds fully before slowly making my way to the midground and lastly focusing on the foreground as well as details. My personality makes its way into my paintings, so you see some events from my life presented with a satirical and lighthearted attitude. I also welcome my viewers to interpret my art as they discover different meaning for themselves. I paint with the purpose to convey to my audience that there is beauty and mystery in life no matter what hardships that one may have been through.

The 100 Day Project - A Study of Hands

Presenter: Katherine Perelas
Project Advisor: Jessica Gerlach

The 100-day project is an Instagram challenge that promotes doing something for 100 days consecutively. The goal of the project is to better one's self,

develop a routine, and have a cohesive set of work to show for it at the end. For my project, I decided to work on a subject matter that had intimidated me for some time; I wanted to work on drawing hands. Although my primary medium used was ink pens on white paper, sometimes I ventured to include pencil or color pencil drawings as well.

Once the challenge had ended, I had 85 works of art documenting my progress. Unfortunately, I had not completed all 100 days. What I did complete were 85 days of hands granting 85 separate pieces of art, which was still an accomplishment in and of itself. I do intend on finishing the collection to total 100 pieces in the future.

I will need internet access to load Instagram for my presentation, the site of which the 100-day project was published. All project material can be accessed through the hashtag #kpd100dayproject

Rachele

Presenter: Michèle Perry
Project Advisor: Gregory Senn

This is a mixed-media 3D piece with metal, glass, sequins, and fabric on styrofoam. The piece is dedicated to the artist's daughter Duana Rachele in honor of her beauty. This is the first in a series of nine pieces representing women.

Lost in Thought

Presenter: Andrew Stevens
Project Advisor: Patricia Dobson

A portrait of a pensive young woman whose face is framed by the fencing behind the Art and Anthropology building at ENMU. Taken at the golden hour, a halo of light surrounds her hair. A wide aperture created bokeh to follow behind her for a truly deep image.

Cracked and be eaten or Hatched and live.

Presenter: Van Thang
Project Advisor: Sandra Hildago

I am going to be displaying my very first ceramic work. It is a 3D art piece, and it has a base that measured 2 inches in each size and 8 inches in height. It weighs about 2-3 pounds.

Poster/Display Presentation Group 21

An Identity Created by Quiet

Presenters: Natalie Franco and Jerry Montoya
Project Advisor: Michael Rizza

One person wrote a poem about being quiet and the other made a design of that poem by adding an image and designing the font. All this is put on a poster meant for creative work display.

Eve's Fro

Presenters: Kyree Mackey and Marguerite Frechette
Project Advisor: Michael Rizza
Award Winner

Transitioning from words on a page to an image of visionary insight, this project is a collaboration of two different artist combining their own skills and talents to create a new art piece.

News package

Presenter: Orlando Perez
Project Advisor: Patricia Dobson

I will be presenting a news package that I made. I was the reporter and co-editor of the package; the package is about an ENMU track athlete who is foreign but having an amazing career thus far for the Greyhounds. The package highlights the hard work/recipe it takes to achieve such a high level of success and discusses the athletes transition to America.

“Papa Was a Chevy Man”

Presenters: Corynn Tenny and Santana Lopez
Project Advisor: Michael Rizza

“Papa Was a Chevy Man” is one of the poems I wrote while taking intro to poetry and fiction writing. I’d never written an entire poem before this class. My main focus was to generate a feeling from concrete images, which was something we were discussing in class. Near the end of the semester, we were given the opportunity to collaborate with graphic arts students, who created images based on our poetry. It was a great opportunity to see what would come from my poem if it were interpreted by someone in a different field of study, and I love what Santana did with it. It, to me, absolutely speaks to the theme of the poem, but she also added a subtle dimension of regionalism, which I thought was a great choice.

My Human has Four Legs too.

Presenter: Janet Walker
Project Advisor: Patricia Dobson

I hope to change the stigma of disabled peoples as being abnormal or wrong. I will be doing this by creating a children’s book that normalized disability and therefore teaches the next generation to ignore stereotypes that are already in place. If we introduce more creative works to able bodied children that normalize disability then they will not see disabled people as a separate part of society that is to be shunned or feared. Instead, the next generation will be raised knowing that disabled people are equals. The book illustrates a puppy being chosen by a girl who has to use leg braces and a wheelchair. The book is from the point of view of the puppy. The puppy doesn’t see her as someone with a disability because the puppy can’t identify her as disabled.

Paper/Performance Presentation Abstracts

Paper/Performance Presentation Group 1

FRIENDS: Why We Love Them

Presenter: Alyssa Wentland
Project Advisor: Darrell Roe

This study uses schema theory to examine how the para-social relationships between viewers and characters resulted in a successful series. FRIENDS was an extremely successful television series, but what about this show made the series so successful? Was it the quick wit between the six protagonists? The subject matter covered (things that were not seen on other series at the time)? Or could it have been the relationship viewers created with its six main characters? There are several factors that contributed to the success, but, without argument, the relationships viewers created with the characters kept them tuning in week after week to see what happened with Monica, Ross, Rachel, Chandler, Joey, and Phoebe.

It is no coincidence that viewers created these bonds; each of the six characters were given unique traits that helped viewers create familiarity and friendships with at least one of the characters. These characters reminded us all of at least one of our own friends and prompted for bonds that mimic ones we see in our day to day lives. It is because of the unique traits and the amount of times we see these traits that we are able to be familiar with our Friends. FRIENDS: Why We Love Them looks at these unique character traits, the number of times traits are displayed, and why the display leads us to creating friendships and bonds with these imaginary characters.

Scratch
Presenter: Jackson Cooperman
Project Advisor: Jonathan Barr

This project is a short film which was created as a junior year thesis. The plot follows three parallel stories centering on five characters, each going through their own critical problems. Throughout the film, they each unexpectedly interconnect or cause consequences to one other. It touches on subjects including unwanted pregnancy, drug addiction, and youth suicide, all controversial modern day topics. This short attempts to show how people can go through the same

feelings and troubles, but be in different situations. The film is still in the making. The purpose of this presentation is to show some clips that we have, talk about the many production complications we have run into, and discuss where the film currently stands. This project hopes to express its ambitions and gain support through this presentation.

Efficiently Running Set

Presenter: Lane Castro
Collaborators: Daniella Gauna, Bryce Dylan, and Sydney Henderson
Project Advisor: Jonathan Barr

Francois Truffaut said that making a film is like going to sea: you start out hoping for a pleasant journey and you end up clinging on, praying to survive. As exaggerated as this may sound, it holds true. The first time I set foot on a set I was blown away with the chaos going on. Everyone is constantly moving because they have a very specific job to do on a very specific time table. There is zero wasted effort and time because time cannot be wasted. And then all of a sudden it is quiet and still. Then in a flash everyone is up and going again. So how does this chaos get managed? In her book Running the Show, Liz Gill says "On set… if everyone knows their job, and especially if you have done your job in organizing the campaign properly, there won't be the need for discussion or disagreement." In this presentation I plan to offer and outline of the paperwork and processes that are industry standard for production efficiency, and compare that to the techniques I used to bring my films from conception to final product.

The Visionary Genius of John Hughes

Presenter: Marcus Whitehead
Project Advisor: Rick Shepardson

John Hughes is an excellent director, but I feel he is underrated as a filmmaker, and his work is often over looked or not taken as seriously. I have found a great deal of striking visual decisions from Hughes in his films that convey emotion and intellectual subtext. I would love to show my favorite clips of John Hughes' films to show the Mise en scene and the implications of the scene that are overlooked at first glance.

Theatre Beyond the Stage

Presenter: Sarah Koss
Project Advisor: Anne Beck
Award Winner

In this presentation I plan to address the uses for a theatre education besides performance. More specifically how the skills we learn can be applied in other fields, and provide examples of such.

The shifting role of Clarinet in Jazz

Presenter: Rebekah Majkrzak
Project Advisor: Pamela Shuler

In the 1930s and 40s, jazz was the popular music in the United States. When one turned on the radio, it was not hard to find ensembles and performers showcasing the jazz genre. Since this time, jazz has shifted from the mainstream of popular music to hold a new role in American culture. Along with this shift in role, jazz has also undergone a number of timbral and functional changes. One major shift has occurred with the role of the clarinet in a jazz ensemble. These changes have forever altered the role of the clarinet in jazz and the way American society views this music and its performers.

FInger Fitness

Presenter: James McInroe
Project Advisor: Richard Schwartz

This presentation is about how to improve finger dexterity, with an emphasis on musicians. I will discuss different techniques to strengthen, isolate, and create independence in all fingers. As a musician, I believe finger dexterity is essential and often overlooked. With the wrong technique, a player can cause health problems such as carpal tunnel. If one uses these exercises regularly and correctly, musical fundamentals will become more natural and relaxed. I will demonstrate five finger exercise to improve finger dexterity during this presentation. There will also be a video of the progress made using the exercises. Through this research, I hope to spread the knowledge and the importance of finger dexterity.

Paper/Performance Presentation Group 2

Insulin sensitivity and vascular responses to flow mediated dilation in Metabolic Syndrome women

Presenter: Ariel Gomez
Collaborators: Klaudia Szych, Abraham Gomez, Annajita Rubio, Andi Johnson, Shannon Jackson, Lorenzo Juarez, Jerene Yazzie, and Sarah Massey
Project Advisor: Matthew Barlow

Sedentary populations with obesity and Metabolic Syndrome (MetSyn) have presented with impaired vascular dysfunction, including reduced vasodilation. The mechanisms of vascular endothelial dysfunction has also been associated to the bioavailability of Nitric Oxide (NO) levels. We hypothesize that decreased reactive hyperemia observed in MetSyn compared to age matched-control patients are primarily due to mechanistic dysfunction of the eNOS pathway and lower Insulin Sensitivity Index (ISI). 90 participants (50 Controls, 28 Metsyn and 12 Diabetics) completed brachial FMD testing and vascular changes were recorded using Doppler ultrasound with a linear vascular probe. A blood pressure cuff was placed on the upper forearm and upper calf for analysis of both brachial and popliteal arteries. Images were analyzed with Brachial Analyzer software and sheer rate calculated by digital recordings of blood velocity. ISI was assessed by an oral glucose tolerance test with fasting and post-prandal glucose measured with a glucometer and insulin measured by a Human Insulin ELISA kit. The resting bioavailability of Interleukin-6 (IL-6) was measured using Human IL-6 ELISA kit and Nitric Oxide assessed by EPR spectroscopy measurements. Significant differences ($P<0.05$) were found in the ISI index, time to peak diameter, and blood velocities. We predict that the significant deficiencies observed between the control and MetSyn group may be explained by the development of vascular deficits associated with the metabolic deficiencies. A postulated mechanism of this endothelial dysfunction during insulin resistance begins with the decreased sensitivity of the insulin receptor preventing the insulin stimulation of the AKT/PKB eNOS pathway.

Effects of High Concentration Vivissential Amino Acids Sports Drink Ingestion on Performance in Trained Athletes

Presenter: Klaudia Szych
Project Advisor: Matthew Barlow
Award Winner

Essential amino acids are necessary for protein nutrition and muscle sustainability. Previous studies looking at the effects of BCAAs did not result in measurable reductions in muscle damage and enhanced recovery of muscle function. The Calwood Nutritionals Company manufactures a balanced nutritional formula of amino acids with the addition of a higher concentration of arginine and methionine, which decreases muscle degradation. The purpose of this study is to examine the changes in performance following the chronic consumption of the essential amino acids in collegiate athletes while following the strength and conditioning training plan of the University Athletics department. We aim to compare a single-dose amino acid group (SDG), double-dose group (DDG) and a placebo group (PG) on a double-blinded study to measure changes in the lactate threshold, aerobic capacity and strength. 17 participants (7 PG, 6 SDG, 4 DDG) completed a health screening visit, 30 days of consuming two 20oz Gatorade drinks per day with or without added amino acid powder, and a follow up visit. The DDG improved significantly in push-ups. The SDG improved significantly in their maximal aerobic capacity. All groups improved significantly in 3RM dead lift and 3RM bench press. The DDG was the only group that improved significantly in 60m sprint. The changes between the groups were not statistically significant. The changes within the groups were significant. These results suggest that vivissential amino acid supplementation combined with training does increase the strength and improves the performance in trained athletes.

The Effect of Feed and Exercise on Ovulation Rate in Rabbits

Presenter: Leah Weathers
Project Advisor: Darron Smith

The effect of feed and exercise on ovulation rates in rabbits
This experiment observed factors that affect ovulation rate in rabbits. Californian meat rabbits, N=6 were housed in a climate-controlled environment, in approximately .61 x .91 x .91 - meter cages, with one animal per cage. The animals were fed once daily, the sedentary group, N=3 were fed 283 grams of commercial pelleted feed and the exercise group, N=3 fed a diet of 71 grams of pelleted feed and 212 grams of coarsely ground cabbage, spinach, and broccoli. Additionally, each rabbit had ad libitum access to water. The rabbits that received the vegetable and pelleted diet were randomly selected. The exercise group were placed daily, one at a time, in a round trough filled with approximately an inch of shavings on the bottom and were encouraged to remain mobile for 20 minutes. The other three rabbits were not exercised. Twice a week, all six animals were weighed. The mean and standard error of the mean for each treatment is presented. The exercise group lost 221.33 + 71.12 g while the sedentary group lost 39.33 + 71.12 g of body weight. The data were analyzed by a general linear model in SPSS and showed

that there was no significant difference. All six animals were then given a dose of Gonadotropin Releasing Hormone (GnRH) to induce ovulation and the results were observed by ultrasound.

Distribution and prey choice of Microstylum galactodes Loew and M. morosum Loew (Diptera: Asilidae) in eastern New Mexico and west Texas

Presenter: Colin McKenzie
Project Advisor: Darren Pollock

Adult robber flies are an important, biodiverse group of predators in open, grassland-type habitats, where they feed on spiders and insects. One of the most spectacular groups of these insects is the genus Microstylum Macquart, consisting of two species in North America, which can reach lengths of over 50 mm. Despite their conspicuous presence, little is known of their biology, including prey preferences. Also, the distributions of the two species, M. galactodes Loew and M. morosum Loew, are incomplete. Our objectives are to give prey selection for both species, based on 58 records (only 8 previously published records) and update the distributions based on newly collected specimens and from internet sources. Prey for both species of Microstylum consisted of four orders (with percentages given): Hemiptera (mostly Coreidae) 45%, Orthoptera (Acrididae) 43%, Diptera (other species of Asilidae) 9%, and Coleoptera (Scarabaeidae) 3%. Bulk indices were calculated for predator and prey, indicating Microstylum are on average 4.9 times the size of their prey (range for bulk index ratios = 1.6–18.5). Based on published accounts of the geographical range of Microstylum, our recent collections have added two new county records for M. galactodes in New Mexico, and four for M. morosum in New Mexico and Texas; internet sites, including www.bugguide.net, added 27 additional new county records for M. morosum from Arkansas, Missouri, New Mexico, Oklahoma, and Texas, as well as 15 for M. galactodes from Oklahoma and Texas. Updated distribution maps are given for both species.

Synergistic effect of trigonelline with antimicrobials

Presenter: Manisha Ojha
Project Advisor: Manuel Varela

Staphylococcus aureus is a major pathogen responsible for causing mild to life threatening infections. Multidrug-resistant strains such as methicillin resistant S. aureus (MRSA) are resistant to a different group of antibiotics

including β-lactams and causes significant morbidity and mortality. This bacterium produces toxins and is capable of extruding antibiotics through multidrug- resistant efflux pump, LmrS. So, to combat the increasing problem of multidrug resistant bacteria, efflux pump inhibitors are necessary. Plant secondary metabolites are found to be an active inhibitors of efflux pumps. The antibacterial action and the mechanism used to inhibit the growth of bacteria are not clear, yet. I have hypothesized that trigonelline works in a synergy with antimicrobials. Therefore, this study aims to evaluate the Minimum Inhibitory Concentration (MIC) and synergy of trigonelline (TRG) with antimicrobials to inhibit the growth of S. aureus. The MICs will be determined by the microbroth dilution method, and the synergistic testing will be performed using checkerboard method at least three times to determine effective combinations of antimicrobials. I expect that TRG possesses antibacterial properties and works synergistically with selected antimicrobial agents such as cumin, cocoa, cinnamon, and streptomycin. This research will aid in the future development of TRG derivatives that are novel antimicrobial agents to treat infections caused by multidrug-resistant pathogenic bacteria.

Manure application affect soil properties and above- and belowground biomass in sorghum

Presenter: Pramod Acharya
Project Advisor: Young Cho

Dairy industry contributes to 45.1% of the agricultural economy of New Mexico. Dairy cattle produce about 900,000 metric tons of dry manure each year, which supplement nutrients and thereby support crop and forage production. However, the application of a high rate of manure and compost can accumulate salt and negatively affect crop production. A greenhouse study was conducted at New Mexico State University Agricultural Science Center near Clovis, NM to evaluate soil properties, soil carbon and nutrient dynamics, and sorghum (Sorghum bicolor L.) biomass production with different rates of composted-manure application. The study had six treatments and four replications. Treatments included compost application at 0 tons/acre (C0), 3 tons/acre (C3), 6 tons/acre (C6), 9 tons/acre (C9), 12 tons/acre (C12) and 15 tons/acre (C15) rates. Soil samples were analyzed for soil organic carbon (SOC), total and inorganic nitrogen (N), available P and K, and secondary nutrients (Ca, Mg, S), potentially mineralizable carbon (PMC) and N (PMN), plant biomass, and biomass C and N contents. Results showed that SOC, total N, available P, K, and Ca contents increased with manure rates. Electrical conductivity and cation exchange capacity also increased with manure rates. Total N content in sorghum shoot was

significantly greater in C15 than C0. However, carbon to nitrogen (C:N) ratio in the sorghum plant (root + shoot) was significantly lower in C15 than other treatments. Research results suggest that increasing manure rates up to 15 tons/acre increase nutrient content in sorghum shoots and improve soil health.

Effects of Different Height and Stem Diameter on Survival Rates of Jujube Suckers Transplanted in a Semi-Arid Farmland in Portales, New Mexico

Presenters: Sanjib Sapkota and Sundar Sapkota
Collaborators: Josh DeLoSantos and Larissa Aragon
Project Advisor: Zhiming Liu

Jujube (Ziziphus jujuba) belongs to family Rhamnaceae and its fruit is rich in nutrients. Although jujube fruit consumption is widespread in Asian countries it is relatively unknown to North America. Jujube tree is drought- and frost-tolerant and can be widely planted across the state of New Mexico. Recently, interest in jujube from consumers and growers is surging. The New Mexico Department of Agriculture has identified jujube as an alternative crop. The major challenge is a very limited availability of jujube trees. The objective of this project was to study the effects of height and stem diameter on survival rates of jujube suckers transplanted in a semiarid farm in Portales of New Mexico. Complete randomized block design with three replications was performed in the experimental field. Eighteen suckers of each treatment were planted into the experimental site during October 2017. The height categories of the suckers were less than 50, 50-100, 100-150 and above 150 cm. The stem diameters categories of the suckers were 0.015-0.06, 0.03-0.07, 0.075-0.12, 0.12-0.24 cm. Observations on the suckers after one-year transplantation demonstrated that the suckers with 50-100 cm height and 0.03-0.07 cm stem diameter had the highest survival rate. This result is useful for growers for planting jujubes in the semi-arid regions like New Mexico. It is expected that jujubes will become a valuable alternative fruit crop in the United States.

Development of A Hydroponic System for Growing Lettuce in Urban Environments

Presenters: Sundar Sapkota and Sanjib Sapkota
Collaborators: Larissa Aragon and Josh DeLoSantos
Project Advisor: Zhiming Liu

Lettuce (Lactuca sativa) is a leafy vegetable belonging to Family Asteraceae. It is very nutritious and a good source of vitamins and minerals. Consumption

of organic vegetables is surging because of the fast growing human population, rapid urbanization, and concerns about environmental contamination. One of the major factors that limit vegetable cultivation in urban areas is inadequate land. Hydroponics is a cheap and easy option for organic vegetable cultivation. The objectives of this study were to develop a cheap hydroponic system and test the effectiveness of different nutrient solutions on yield and quality of the lettuce grown in the hydroponic system. Hydroponic system was made with plastic containers, Styrofoam plates, and plastic cups. A complete randomized block design with three treatments and three replications per treatment was performed. The concentration of N, K and Ca for the treatments were 150, 200, 300 ppm, 100, 200, 300 ppm, and 200, 225 and 250 ppm, respectively. The other nutrients such as P, B, CU, Mo, Na, Zn, Mg, and Fe were kept the same for all treatments. The lettuce seeds were germinated after planting for one week in small cups containing potting soil. After growing for three weeks the lettuce seedlings were transplanted into the hydroponic system. Variables such as weight and chlorophyll content were recorded. It is expected that the development of a cheap and easy-care hydroponic system will help urban area residents for producing high-quality and large-quantity organic vegetables.

Paper/Performance Presentation Group 3

Presented by: ^Present ^Present, a Presentation

Presenter: Sean McLaughlin
Project Advisor: Heather Smith

The purpose of this project is to represent the importance of syntax in language, and to dabble in more abstract expressions of linguistics. This will be demonstrating by the creation of a conlang (constructed, or non-natural, language). This company is being developed with the intention of limiting conventional morphological structure. It also highlights syntax as an important means of conveying semantic information. The conlang will include only one word; and by a process of changing stress, changing spacing, and use of an intricate syntax system a functional and intelligible language will be formed. In doing this, it will remove the semantic value associated with phonemes, leaving meaning almost entirely in the hands of syntax.

That's not the point of Babette: Exploring Babette's role in a Dystopic Consumer Society

Presenter: Kelly Cradock
Project Advisor: Michael Rizza

Critics have debated the centrality and importance consumerism, authenticity, and postmodernism in Don DeLillo's White noise for over three decades. However, the literature surrounding the text has failed to include the objectification of Babette and the fact that her identity has been placed upon her and used as a product of means to material gain. I want to address the lack of conversation surrounding Babette and how she represents objectification of women in postmodern literature. I will be using Gayle Rubin's approach to Marxism and Eve Sedgwick's Erotic triangle theory to address how Babette is a reproduction of goods. This will open the conversation surrounding White Noise to include female characters and bring to light women in postmodern literature.

A Wildly Cultivated Dream: Landscape and Animal Spaces in Chaucer's Book of the Duchess

Presenter: Bridget Richardson
Project Advisor: David Sweeten

This paper considers the historical importance allotted to perceptions of landscapes and animals within dream vision poetry in the mid-fourteenth century. Specifically, it looks at the physical areas characters fall asleep within works such as Geoffrey Chaucer's Book of the Duchess and what aspects, if any, those spaces translate into the dream world. It also explores ways in which animals in those spaces are perceived and what roles are attributed to them. There seems to be a pull towards an uncultivated or unexplored landscape within many medieval poems despite the increasing amount of productivity and expansion that was occurring during the fourteenth century. These dream landscapes remained necessary for experiences in part because the physical landscape and the animals within that landscape at the time, though in some cases uncultivated or wild, were largely influenced by and even regulated by people. This paper will explore how a character's perspective of a physical landscape within an internal dream changes or challenges that same character's perspective of the external physical landscape and vice versa. The ways in which landscapes and animals begin to take on active and passive roles in a text and the ways in which they are interacted with could reveal not only potential anxieties during the time period, but how those anxieties may have been heightened or alleviated by the presence or absence of a wild versus tamed surrounding.

Trauma's Significant Impact on Identity in Coming-of-Age Stories Bless Me, Ultima and Under the Feet of Jesus

Presenter: Alexandria Crowson
Project Advisor: Micah Donohue

Coming-of-age stories are often read through lenses of mythological and landscape theory with minor allusions toward trauma theory, often referring to "emotional" or "horrific" events. Trauma's significant impact on identity in coming-of-age novels in Chicano literature has not been analyzed directly enough. This article will analyze the way in which trauma molds the identity and coming-of-age in Chicano characters within the novels Bless Me, Ultima and Under the Feet of Jesus. Viewing through the lens of trauma shows evidence that the mythological and landscape theories are important in these novels; however, the impact—or rather, trauma—that the "horrific events" have on these young Chicano characters is principle to the success of these characters in determining their identity that many coming-of-age stories display today.

"Isn't It Pretty to Think So": Revisioning Intimate Relationships in The Sun Also Rises

Presenter: Jennifer Baros
Project Advisor:: Micah Donohue
Award Winner

Almost fifty years of literary criticism maintain that Ernest Hemingway's protagonists are stoic, masculine heroes whose relationships are driven by sex. Yet in his debut novel, which is considered to be the first in American literature dealing with post-traumatic stress, Hemingway gives us the character of Jake Barnes, an antithesis to these accusations. I posit that Jake and the woman he loves, Brett Ashley, struggle through an upheaval in gendered spaces in the wake of the first world war, but also offer a picture of the restorative process available to combat veterans in the context of secure, emotional attachments. By layering revised trauma theory with attachment theory, we can view the relationship at the center of Hemingway's "The Sun Also Rises" as foundational to modern war literature, such as Baker's "Regeneration," Klay's "Redeployment," and Marra's "A Constellation of Vital Phenomena," so that relationships affected by war can leverage the hope indicated in Hemingway's title, and proffer it to subsequent generations of veteran-survivors who, like Jake, must learn how to live and love in a world after war.

Compensatory Masculinity in James Baldwin Giovanni's Room

Presenter: Natalie Franco
Project Advisor:: Michael Rizza

The social expectations of gender roles pressure men into following the traditional role of masculinity. Some of these expectations are working to provide, marrying a woman, and being tough. If a man denies this role or doesn't follow it, such as being homosexual, society no longer accepts them as a "man" or the person has lost their masculinity. "When marginalized men feel unable to accomplish the same forms of masculinities that privileged men acquire, they enact "compensating masculinities," (168). My paper will investigate these compensating masculinities in the novel Giovanni's Room. David's, the main character, sexuality marginalizes his masculinity and to compensate, he uses aggression by being a conqueror. This causes him to use people as objects in order to deny his sexuality because society makes it easier to follow the traditional role of masculinity. His relationships with the characters in the book set the foundation of David being a conqueror because he gets this behavior from his father and Joey is the person who awakens his sexuality. When David lives in France, he meets two old gay men who use the market place to compensate the threat to their masculinity in order to get power because of their sexuality. With Giovanni, his lover, is where David uses him as an object and Giovanni embraces marginality by accepting the role that David puts him in. By compensating his masculinity and wanting to follow the traditional role, David denies himself and his sexuality.

Paper/Performance Presentation Group 4

Solid Phase Microextraction and Its Forensic Applications in Gunshot Residue Analysis

Presenter: Rachael Young
Project Advisor: Juchao Yan

In the United States, there are on average 109 people are killed by guns every day. In forensic science, there is no one right answer, as you have to deal with chain-of-custody, the courts, and constantly having a say as to whether things are done correctly or not. This paper is a review of various applications of the Solid Phase Microextraction (SPME) process of gunshot residue (GSR) analysis used on a single particle, fiber types of organic components of unburned

propellant powders, SPME-gas chromatography-nitrogen phosphorus detectors, that speed up the testing and reduce the cost. SPME is an important tool to prepare samples both in the lab and on-site. It's a "green" technology because it eliminates organic solvents from the analytical laboratory and can be used in environmental and forensic analysis. The simplicity of use, short processing time, and fiber reusability makes SPME a good choice for (GSR) analytical applications. These articles will demonstrate the importance of the analytical application of SPME and its contribution to identifying GSR. The results showed the SPME procedures can be analyzed repeatedly and non-destructively making it possible to test the sample when the sample GSR has to be analyzed again and again using other techniques during the forensic investigation. In conclusion, SPME and the other research methods discussed are making testing quicker, faster, and repeatable in the chain-of-custody. This research is important because of the ever-increasing number of people dying from guns.

Synthesizing caffeic acid derivatives as a novel pharmacophore for anticancer agents

Presenter: Thomas Germain
Project Advisor: Zihan Wang

In the search for a therapeutic, phenolic compound, the large and complex organic molecule, caffeic acid, occurring naturally in the Plant Kingdom indicates an area for further academic inquiry. Representing phenylpropanoids, caffeic acid has been selected as a compound of interest, and is found as simple derivatives including amides, esters, and sugar esters in low concentrations. To optimize the lengthy and inefficient isolation from photosynthetic mediums as well as determine bioactivity such as anticancer, anti-inflammatory, antinociceptive, and antioxidant properties of the caffeic acid derivatives, amination and esterification were utilized to develop efficient molecular interaction between the compound of interest and drug targets. To characterize the various properties of resulting synthesized molecules, instrumental analysis was completed such as NMR, UV/Vis, FTIR, GC-MS, TGA, and ITC.

Improving organic solar cells by developing novel oligo(p-phenylenes)

Presenter: Vance Miller
Project Advisor: Juchao Yan
Award Winner

The development of phenylene and fluorene based compounds has the potential to yield low-cost, readily available, semiconductor materials that can be used in a wide range of applications involving organic electronics. This study aims to synthesize specifically tuned nitrile-substituted ladder-type oligo-p-phenylenes to be later characterized and evaluated for applications in organic photovoltaics. These compounds have the potential to meet the charge carrier mobility, structural stability, affordability and ease of manufacture that is essential for large scale production components of the active layers in organic photovoltaics. Improving organic photovoltaic cell components is expected to make solar energy production more competitive with existing fossil fuels. The expected synthetic route for the target compounds follows a multi-step process involving multiple Suzuki cross-coupling, cyclization, alkylation, bromination, and lastly nitrile substitution reactions. Future analyses should reveal whether or not this material meets the criteria for use in the active layers of organic photovoltaics, specifically as an n-type semiconductor.

Effect of pretreatment methods for total lipid extraction from wastewater grown microalgae

Presenter: Dhanush Amarasekara
Project Advisor: Juchao Yan

Biodiesel is a promising alternative energy source which can be used in conventional diesel engines without any modification and can be mixed with petroleum diesel in any proportion. Lipids extracted from microalgae can be converted into biodiesel with low energy consumption by transesterification. Cell disruption can be used to enhance the release of lipids from algae and improving the access of the extracting solvents to fatty acids. Chemical disruption (acids and bases), Ultrasonication, microwave, autoclave and osmotic shock have been tested in pure cultures of microalgal cells.

Paper/Performance Presentation Group 5

Venezuela Madurando

Presenter: Jonathan Moran
Project Advisor: Daniel Acheson-Brown

Venezuela is a country in the midst of political instability. The South American country has the largest oil reserve with an estimated 298.4 billion barrels. The socialist country ruled by Nicolas Maduro has been suffering an economic and social crisis. With the shortages of basic human needs, people lead by opposition leaders, have taken to the streets demanding a new president. The reaction of the Maduro government to address these problems have been too little too late, and is now facing the possibility of foreign intervention, especially from the United States. The United States is at the ready to aid the opposition in overthrowing the Maduro government, and immediately provide food and medical aid to those in need. This is would be ideal to help reestablish the democratic process to the country and have a key ally in the region.

Stalin, Lenin, and Propaganda

Presenter: Kade Miranda
Project Advisor: Dale Streeter

This research paper will be focused on the propoganda of one the many dictators of the Twentieth Century. Specifically it will be focused on Joseph Stalin and his use of Vladimir Lenin's ghost to elevate and maintain his position within the Soviet Union. However, Lenin's ghost proved to be a stronger image than Stalin ever could be, and would go on to replace him as the divine figure of the USSR. A handout will be provided that has an example of the Stalinist propaganda that was analyzed in this paper.

The Fleeting Glory of a Forgotten Hero

Presenter: Lauren Mazuranich
Project Advisor: Donald Elder

Benedict Arnold was one of the most capable generals of the American Revolution, and his efforts for the colonists cause for freedom from the British have largely been forgotten and ignored, much like the time in which they happened, which may been part of the reason he betrayed the young nation. Whether a tragic hero or a foolish villain, Arnold's military endeavors on behalf of the revolution served to save the cause and help ensure the United States' sovereignty.

The Media and Their Not So Rose Colored Glasses

Presenter: Lauren Anderson
Project Advisor: Omar Camarillo
Award Winner

This presentation aims to bring to light how the media uses various different ways to bring the public's attention to certain issues over others. I compared news articles from the US as well as two other countries on the topic of immigration and found that the US has heavy bias in their news media. I also give background information into the sociological and persuasive aspects of how the media operates to affect the public's social construct of reality and how they perceive crime in their country.

Personality Disorders Associated with Violent Crime

Presenter: Victoria Forte
Project Advisor: Donald Raley

Understanding the behavior of offenders committing violent crime begins by looking at what may have driven them to commit the violent offense. These behavioral clues can be identified by the interaction of the offender and their victim, the organization or lack thereof present at the crime scene, and the interaction the offender has with people in their day to day life. These behaviors can stem from interactions that significantly impacted them in childhood, and the fantasies/delusions that get them through their everyday life. Included in these fantasies are multiple aspects of the crime, including their ideal victim type, which plays a large role into ultimately "satisfying" the fantasy in the offender's mind. The psychology of the crime begins far before the crime is committed, and understanding how an offender thinks can have a substantial impact on the investigation of the crime itself. This paper sets out to discuss that impact and how personality disorders are inherently linked to violent crime. It is important to note that the violent crime discussed in this paper includes the categories of assault, sexual assault/rape, sexual homicide, homicide, and serial homicide. Violent crime and personality disorders within the offender, are directly related and impact the act of the crime itself.

Determining Legal Insanity: A Case Study

Presenter: Ileea Jaramillo
Project Advisor: Kathy Roler Durand

In 1987, Darci Kayleen Pierce performed a haphazard C-section using a car key on a woman who was nine months pregnant, whom she had abducted from Kirkland Air Force Base. In an attempt to make it look as though Pierce gave birth to the baby, she constructed several stories. Her stories, however, were poorly written and gave way to a large amount of suspicion. Hours later, Pierce finally told the truth before leading Police to her victim, Cindy Ray's body in the Sandia Mountains. She was a severely disturbed individual, but her actions begged the question of whether or not she was legally insane. The prosecution's lawyers then sought to illustrate that Pierce was not criminally insane; she was capable of distinguishing right from wrong and had had plenty of time to change her course of actions but chose not to do so. The defense argued that Pierce was suffering from Dissociative Identify Disorder, resulting in her not being able to distinguish right from wrong as her personalities shifted and she lied to cover the gaps in her memory. This presentation explores the blurred line between severe mental illness and legal insanity.

Paper/Performance Presentation Group 6

Multicultural Lesson Plan on Nuclear Reactions

Presenter: Victoria Arrowsmith
Project Advisor: Geni Flores
Award Winner (Tie)

This is a lesson plan written for a 9th grade physical science class on the concepts of nuclear reactions. Specifically, in this lesson, the nuclear reaction of fission is explored by students. The way that this concept is delivered is through a multicultural lens tied to New Mexico and world history. This lesson incorporates various pedagogical techniques such as Universal Design for Learning (UDL) to meet the needs of diverse learners, and Phenomena Based Learning (PBL) which aligns to Next Generation Science Standards (NGSS)

A Walk through Child Poverty in New Mexico

Presenter: Sonya Wagner
Project Advisor: Gary Bond

Poverty is more, much more than just not having enough money. According to the State Year Report (2018), New Mexico is the second worst in childhood poverty. Child poverty is an important issue that affects the state's communities, families, employment, and health rates. In the state of New Mexico, every child deserves to grow up safe, healthy, and secure. The high child poverty rates in New Mexico connects to the state's economy; poor economy leads to less employment opportunities and more children in poverty without shelter, food, and clothing. The effects of improving childcare systems, reducing teen pregnancy, and increasing job opportunities with help from the communities and schools will decrease poverty rates. Funding for early childhood education costs are higher than the in-state college tuition rate. Approximately 42% of New Mexicans struggle to find job opportunities, due to the 62% jobs who pay less than $12 per hour, families live below the poverty line. The fight against hunger affects early childhood brain development and their ability to learn due to the lack of proper nutrition and support. Without improvements now, New Mexico will suffer from future crime rates, higher poverty rates, and educational neglect. I created a public service announcement targeted at adults of all ages to address this pressing social justice issue.

Language of Empathy

Presenters: Darien Sturtevant and Rio Tate
Project Advisor: Gary Bond
Award Winner (Tie)

Empathy is a psychological state that has been characterized as adaptive as a social behavior (Heinrich, 2011). In some cases, we may be more or less likely to offer empathy if the target is different from us in a domain such as sexual orientation or identity. Although self-reported empathy has long been a predictor of less bias toward sexual minorities (Johnson, Brems, & Alford-Keating, 1997), experimental studies have not been completed that prime participants to be empathetic. Two experiments primed one group of participants with empathetic and one group with dry academic stimuli. Participants responded to five open-ended questions about transgender, lesbian and gay individuals. The Linguistic Inquiry and Word Count (LIWC) dictionary recognized and coded 89% of all words participants used. Seventy-five word categories were examined using LIWC.

In experiment 1, which assessed attitudes toward transgender individuals, six word categories showed significant mean differences between the empathetic and academic conditions in independent samples t tests: function words, adverbs, negative emotion words, feel words, affiliation words, and time words. Means showed that participants used higher percentages of words in those word categories. In experiment 2, when attitudes toward gay and lesbian people were investigated, the same results were replicated with the exception of feel words ($p>.05$). People in the empathetic condition tended to relate more to the experiences of sexual minorities, which was displayed through the use of more descriptive personal narratives. They shared and seemed to understand the personal feelings and negative emotions experienced by sexual minorities.

Benefits of Medical Marijuana

Presenters: Clay Enderez and Patricia Dower
Collaborator: Darien Sturtevant
Project Advisor: Gary Bond

We have created a Public Service Announcement (PSA) to increase awareness about medical benefits of marijuana and how the effects are beneficial for many people who suffer from diseases such as addiction, chronic pain, cancer and more. The specific target audience is to all voters/lawmakers in the U.S. because they have the power to change laws regulating the use of marijuana. Over the past century, popular opinion has fluctuated concerning marijuana. Currently some states have legalized marijuana completely, some have legalized it partially, and other states have not legalized it. Our foremost concern is that people may not know about benefits of medical marijuana. The main chemicals that are used in medicine are delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD). These chemicals work to reduce serious symptoms in many diseases. Many patients can be prescribed medical marijuana to help with severe anxiety and help ease them off more serious drugs such as heroin or cocaine. People do worry that using medical marijuana would become a gateway drug for some users leading them to more serious drugs but that is why we are advocating for proper education to show that many people would suffer without this treatment.

Recycle or Die: Improving Access to Recycling Options in Small Communities

Presenters: Christian Hernandez and Christa Koglin
Project Advisor: Gary Bond

We created a Public Service Announcement (PSA) to raise awareness of how wasteful production and wasteful living has affected the earth. The specific target audience for our PSA are adults living in rural areas because of their lack of access to recycling options. The Industrial Era of manufacturing and mass production was only the beginning of the issue. Recent decades of the Technology Era have added to the traditional production of goods and have immensely elevated the situation. The focal concern is the amount of non-biodegradable products being manufactured, and lack of access to recycling programs in small communities. Additionally, distance to recycling centers makes recycling difficult and both economically and energetically inefficient. The geographic isolation, combined with the unique socio-economic circumstances found in many rural areas, creates an even greater divide between challenges faced by urban areas and rural areas. Products that are not recycled are taken to waste management plants, some of which do not have recycling equipment and/or machinery at all. Landfills introduce another concern. Most landfills have a large proportion of plastic, taking hundreds of years to decompose. Further, landfills present long-term threats to groundwater due to precipitation that falls into landfills. This announcement presents methods grounded in psychology to provide guidance of efficient ways of living that can help make a difference despite the lack of recycling options, as well as offer a glimpse into a foreseeable future of children in the generations to come.

Paper/Performance Presentation Group 7

Los enfermedades y el identidad de los caracteres en las filmas El Aura y Güeros

Presenter: Alexandria Crowson
Project Advisor: Rodrigo Figueroa Obregon

Mientras las filmas El Aura, dirigido por Fabián Bielinsky y producido en el año 1993, y Güeros, dirigido por Alonso Ruizpalacios y producido en el año 2014, tiene muchas diferencias, las filmas también tiene muchas en común con respecto a los temas subyacente y rasgo personalidad. En el superficie, las dos filmas son diferente en el aspecto de género, El Aura es un drama y thriller y Güeros es una comedia, además de en contexto de la trama, ambos las filmas tienen los objetivos diferentes. Sin embargo, mirar en el contexto profundo, los protagonistas tienen asuntos similar cuándo la audiencia están enfocando en los asuntos interno de los protagonistas en vez que los asuntos de la filma en general. Los aspectos sociales y morales pueden ser descubierto en ambas de las películas, pero más enfoca en El Aura, mientras los aspectos política pueden ser descubierto

mucho más en Güeros, como esta filma es basado en una historia verdad en contento histórico de México. En esta ensayo, enfocaremos en los factores subyacentes de los protagonistas, incluso los enfermedades que los protagonistas de sufren, y como los enfermedades afectan el conflicto interno de identidad en los protagonistas.

Paper/Performance Presentation Group 8

Factors in Farming

Presenter: John Young
Project Advisor: David Hemley

My research and presentation for the student research project will be based on the different input factors of growing wheat and how these different factors play a role in the amount of bushels that is produced at the end of the plants life cycle. The four different items that will be analyzed throughout this project are the cost of seed, fertilizer, herbicides, and pesticides. By looking at these different factors we hope to see which of these different variables has a greater impact on the wheat production in terms of bushels produced, and a variable that cannot be controlled is the amount of precipitation that was received from year to year and which variables during years of drought could be adjusted to best maximize profit during the years of drought. Drought is key in this project due to the fact that the farm being observed in this study does not irrigate their crops, they receive all their precipitation form either snow, or rain.

An Empirical Investigation into Market and Macroeconomic Relations

Presenter: Michael Giannini
Project Advisor: David Hemley

This study will look to empirically investigate whether a statistically significant relationship exists between the United States macro-economy and the S&P 500, Dow Jones, Russell, or Nasdaq Index. The macro-economy will be measured in changes in nominal national income and market data will be measured by the change in market returns, both measuring on an annual basis. Thirty-years of economic data will be collected from the Bureau of Economic Analysis and Yahoo Finance for nominal national income and market changes respectively. An Ordinary Least Squares regression, using the equation: “Nominal

National Income = f(Index)" will be conducted at the 95% level of confidence. A discrete "Dummy" variable will be used in unison with other independent variables for years containing extreme economics abnormalities (I.E. 2008-2010 Recession). Upon completion of the study, statistically significant evidence will be used to infer that nominal national income maintains a statistically significant relationship with annual market trends.

American Income Levels Influence on Unemployment Rates

Presenter: Chelsesa Muncy
Project Advisor: Sue Stockly

Do different income levels in the United States experience different unemployment rates? This study examines three income levels in the U.S. (low, median and high) and national unemployment rates. This study was developed with the purpose of determining how the independent variables of lower, middle and upper income levels affect the dependent variable of unemployment rates. Data are collected for the past 34 years of historical income for the three income brackets from the Internal Revenue Service along with the national unemployment rates for those same years from the Bureau of Labor Statistics. Multivariative regression analysis of the data are used with control variables to measure time and other macroeconomic conditions. This study finds that although the lower and middle income levels were expected to contribute the most to unemployment rates, all income levels have a negative relationship with the dependent variable of unemployment to varying degrees.

The Effect of Females on Tuition

Presenter: Adrian Balderrama
Project Advisor: Sue Stockly

Half a century ago attending a four-year college would cost around 4,000. In comparison, half a century ago the percentage of female students attending college was 38 percent. As of last year, the cost of tuition was almost 12,000 dollars while 57 percent of students were female. In four-year public colleges like ENMU, both the price of going to college and the number of females attending college have been increasing for the last fifty years. The research question is "Do female enrollments in public universities affect tuition rates?" The dependent variable is tuition rates from 1963 to 2016 and the independent variable is the percentage of female students from the same year. Information for both variables

obtained from the National Center for Education Statistics. Control variables for changes in the macroeconomy are included in the analysis. The methodology is multivariate regression. The increase in female enrollments is highly correlated with increased tuition.

Regulation on financial markets and the effects that they have on corporate finance performance.

Presenter: Price Drake
Project Advisor: David Hemley

In the research below, my goal will be to examine the relationship between regulations that are imposed on the financial markets, and the impacts that they have on corporate finance and the performance of those companies. We are going to use the last two recessions in the United States as a basis for observation. When looking back at the recessions that occurred in the 1980's as well as the late 2000's there was both regulation and deregulation that went into effect pre and post-recession. What this paper will examine is what effect that those regulations had on the performance of those companies based on the recession taking place. In order to do this, we will analyze what regulations were in place before the recession and look at the share price of five of the largest financial institutions in the United States, as well as the regulations that went into place following the recession and what effect that had on the share price of the company in the following five years. The five-year window will be used in order to keep the recession stock price from skewing the results of our data. Additionally, the share prices will be converted to the equal dollar amount value based on inflation rates, in order to make sure the comparison is accurate. Each pre and post-recession company will be compared to one another in order to track how they were affected.

Is Gold A Good Hedge Against Inflation?

Presenter: Alan Ronquillo
Project Advisor: David Hemley
Award Winner

Gold has always been a valuable resource that many have strived to possess, especially in the United States. From the days of the gold standard, to when it was abandoned in the 1930s, to the present day, it still holds a strong value. Due to the U.S. dollar no longer being backed up by gold; many individuals

tend to keep quantities of it in case the U.S. dollar were to ever lose its value. Though this seems unlikely to happen anytime soon, it does represent how precious the metal still in the eyes of many. Although, while the U.S dollar may no longer be backed up by gold, does that mean it doesn't play a factor in today's national economy, or does it? This research paper will look to examine the relationship between the return on gold and inflation in an attempt to answer the question of whether gold is a good hedge against inflation. If their countries are experiencing high levels of inflation, many investors will typically buy large amounts of gold. This is because it's believed that gold will maintain or increase its value over time, thus providing a good protection against the depreciation of the currency. Although, there are many well researched and proposed counterarguments that deny the effectiveness of gold as a hedge against inflation. Due to this, on-going inflation, and the strength in the value of gold, there is a well-motivated push to empirically test gold as a hedge against inflation.

Identifying methods and criteria for valuing private companies: An empirical perspective

Presenter: Chukwudalu Okoli
Project Advisor: David Hemley

This paper serves to present a study on how privately held companies or corporations can be valued by analysts and investors alike. Most of the valuation techniques such as the dividend discount model, constant growth model and total payout model are all geared towards publicly traded companies whose share prices and market information are made publicly available. There are certain times when investors may need to measure the value of private companies, hence this study seeks to empirically identify and analyze closely held stocks and build a model or confirm the reliability of existing ones that can be used universally to ascertain the worth of these companies. Literature written by experts and academic professionals on the field of finance dealing with valuing companies will be reviewed extensively and existing valuation models will be tested. An experimental private company of a given industry will be valued using a comparable company analysis with a sample of seven publicly traded counterparts from the same industry using their respective multiples. The companies are of the fast food industry and they include Starbucks, McDonalds, Wendy's, Papa John's pizza, Dunkin' Donuts, Chipotle, and Domino's Pizza. This study is unique in that it not only empirically and quantitatively assesses the value of a private company but also identifies unambiguous criteria and deduces a method that can be universally applied to valuing medium and large-size private companies.

Paper/Performance Presentation Group 9

Crime and Youth Unemployment in Nigeria: Is there a cause-and-effect relationship?

Presenter: Chukwudalu Okoli
Project Advisor: Sue Stockly
Award Winner (Tie)

This paper provides a detailed look at the relationship of the youth unemployment problem with the increased reign of crime facing Nigeria. The research question is, "Do crime rates affect youth unemployment in Nigeria?". The independent variable is the crime rates over time, and the dependent variable for this paper is the unemployment rate. Data are available to allow for separate analyses for male and female youth. In general, this paper seeks to answer the question as to whether crime affects youth unemployment in Nigeria. Literature published on crime and unemployment in Nigeria is reviewed extensively, and studies are examined to assess the unemployment situation from an empirical and statistic-based perspective. This study will consist of data on independent and dependent variables, with crime being the independent variable and youth unemployment being the dependent variable. The methodology used is multivariate regression. Control variables are included to measure time, political regime and population growth. The data are from the National Bureau of Statistics (Nigeria) and the World Bank. The conclusion of the statistical analysis shows a positive relationship between crime and unemployment for male youth and the total youth population in Nigeria. And the positive relation is higher for the female youth.

Exploring the Relationship between Unauthorized Immigrants in the U.S. Workforce and Unemployment Rates

Presenter: Jessenia Rutherford
Project Advisor: Sue Stockly

With the current POTUS administration, there has been much debate about the effects of unauthorized immigrants in the United States. A major area considered in this debate is employment, specifically, the lack of employment opportunities for citizens. The unemployment rate tells a lot about the U.S.: how its economy is doing and how satisfied its citizens are, among other things. So, how do unauthorized immigrant workers in the United States affect unemployment rates? The independent variable in this study is the number of

unauthorized immigrant workers in the United States. This data is available at the Pew Research Center. The dependent variable is the U.S. unemployment rate available at the Bureau of Labor Statistics website. The data set includes control variables such as a variable for time and a variable for immigrant status. The methodology is a multivariate regression analysis. Statistical analysis indicates a positive relationship between the dependent and independent variables used.

The affect of health Insurance on unemployment

Presenter: April Astorga
Project Advisor: Sue Stockly

I chose this research study because last semester I took a global health class and found it interesting. I wanted to know more about the effects of health insurance in the United States aside from what I had learned in my global health class. Over the years there have been discussions if the United States should provide universal health insurance. My research study demonstrates how people without health insurance affect the unemployment rate. My research question is "Does having health insurance affect the unemployment rate?" The data on the unemployment rate (1999-2016) was found in the Federal Reserve Economic Data on the St. Louis Federal Reserve Bank website, and the number of people without health insurance was found in the Centers for Disease Control and Prevention website. Control variables to measure trend and population growth are also in the data set. Multi-variant is the methodology. A preliminary analysis shows a positive affect between high employment rates and lack of health insurance.

Capital Structuring and the Business Cycle

Presenter: Morgen Nations
Project Advisor: David Hemley
Award Winner (Tie)

Over time, businesses have started to fully comprehend the growing importance of business cycles, not only within their own respective industry, but within the macro-economy itself. By understanding these various cycles, businesses can further understand, and therefore mitigate, potential risk. In regard to risk, as discussed in the modern era, capital structuring is often the one of the key topics. This in turn poses the question, how does capital structuring, specifically the ratio between debt and equity, affect the way that public companies respond to the business cycle? This study is designed to examine the

relationship of the business cycle in regards to capital structuring by using linear regression, and looking at a sample of different public companies with various debt to equity ratios. The business cycle shall be defined primarily by employment numbers, gross domestic product, and the stock market. Additionally, this study will focus solely on the United States of America. By furthering the understanding the factors of risk across different companies, businesses and consumers may have better protection going forward.

The Effect of Net Trade on Unemployment Rates in the U.S.

Presenter: Zachary Laurenz
Project Advisor: Sue Stockly

On the news you hear that trade with other countries has taken away jobs within the United States. This led to the simple question of how do net exports in the United States affects job growth. The data used for the dependent variable is net exports which was found on the Federal Reserve Economic Database. The data then used for the independent variables was net job growth which was found on the Bureau of Labor Statistics website. Control variables included were time variables and for changes in the macro economy. The methodology used when using the data was a multivariate regression. The statistical analysis show that trade does not have a significant affect on job growth in the United States.

Access to Electrictiy and the Affect on Literacy Rates in Lower Income Regions

Presenter: Monica Martinez
Project Advisor: Sue Stockly

This study focuses on the relationship between access to electricity and how it affects the literacy rates of lower income regions of the world. I find that it is interesting that there are still many areas in the world that do not have access to electricity. This fact made me question how a lack of electricity could affect a person's access to educational resources. The data in this study were obtained from The World Bank on these four regions, East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, and the Middle East and North Africa. All regions in this study exclude data from high income countries. The independent variable is the percentage of the population that has access to electricity. The dependent variable is the literacy rate. The literacy rate is the percentage of adults age 15 and above that have can both read and write. Included in the data set are control variables that measure trend and economic growth. The

methodology is multivariate regression. The statistical evidence in these regions show that literacy rates depend significantly on electricity.

Paper/Performance Presentation Group 10

Does US Federal Debt affect Unemployment Rates?

Presenter: Marquell Ruiz
Project Advisor: Sue Stockly

Everyone has an opinion on whether federal debt is good or bad for the economy. This study examines the question based on analysis on actual data. The dependent variable consist of the total federal debt owned by the public as a percentage of Gross Domestic Product (GDP) from January 1970 to July 2018. The primary independent variable is the annual US unemployment rate during the same years. Unemployment gives a good measure on how well the economy is doing, even more than real GDP. Control variables are included in the data set to measure time and changes in population. The methodology is multivariate regression. This study shows that the percentage of federal debt held by the public does not affect the percent of population of unemployed citizens in the United States. This means that federal debt does not seem to be a problem in the economy.

CEO Compensation and its Effect on Stock Price

Presenter: Justin Slavey
Project Advisor: David Hemley

This research paper will evaluate the basic idea that compensation of the Chief Executive Officer (CEO) will have an effect on the stock price of their respective company. In this research paper the value of a company is based solely on the share price at the end of the year. The CEO compensation data will be derived from the disclosed amount compensation amount on each of the company's annual reports. The previous 5 years for 5 CEOs of companies that are being traded on the DOW index. These 5 CEOs will include: Alex Gorsky, Robert Iger, Ginni Rometty, Kenneth Frazier, and Jamie Dimon. The companies will be: Johnson&Johnson, Walt Disney, IBM, Merck, and JP Morgan Chase, respectively. The criteria for these CEOs to be selected is that they must hold the position for the years of 2012 to 2017. The data will be run using a pooling method of analysis

on gretl. Once this data is analyzed there will be evidence one way or another that CEO compensation does indeed have an effect on the value of the company at the end of the year in terms of stock price.

Alternatives to CAPM

Presenter: William Powell
Project Advisor: David Hemley
Award Winner (Tie)

In this research paper, the Capital Asset Pricing Model will be taken and compared to alternative asset pricing models. The alternative models being used are the Dividend Discount Model and Free Cash Flow Model. The purpose of this research is to determine whether the Capital Asset Pricing Model is the most accurate model to use when valuing a company's share price or if the alternatives are better indicators as to what the price is. With these calculations being made, the stock can be shown to be overvalued or undervalued. If the other models give values close to what the Capital Asset Pricing Model generates within two standard deviations, it can be assumed that the other models are acceptable alternatives. This gives investors different models to choose from what they believe will be the most accurate predictors for the price of an asset. Furthermore, the value will give indications as whether or not to purchase, hold, or sell the stock. With new models available in deriving the value of an asset, investors can look at each and find which model works best for investments in particular markets. A total of 10 companies will be chosen for this process, all of which pay dividends regularly and are prominent companies operating within the United States.

The Effects of Debt Financing

Presenter: Kaitlyn Kluna
Project Advisor: David Hemley
Award Winner (Tie)

The research is over the topic of debt financing. Many companies finance with debt, but the question is why and how much debt is too much? The study will be focused and specified on companies in the telecommunications sector. The five companies that will be a part of this research are Cincinnati Bell Inc., AT&T Inc., Verizon Communications Inc., CenturyLink Inc., and Sprint Corp. In gathering data for the study, there will be thirteen years of financial data collected from

these five companies. The goal is to look at long term debt related to total assets and see if the ratio has any effect on share price and/or return on assets.

Has the entry of the Czech republic into the European Union in 2004 has a positive effect on the country's trade?

Presenter: Ibone Bilbao
Project Advisor: Sue Stockly

The European Union (EU) is a unique economic and political partnership made up of 28 European countries that together cover much of the continent. In the wake of the Brexit case, the question has arisen as to whether or not membership in the European Union is beneficial to the countries concerned. I chose to study this with Czech Republic which has been a member of the Union since 2004. The Czech Republic joined the EU with the hope that this association will give it new opportunities in various sectors and that it will have more opportunities to export and import goods. Has the entry of the Czech Republic into the European Union in 2004 made a positive effect on the country's trade? The data included the annual net trade (dependent variable) between year 1990 to 2017 and a dummy for European Union membership (independent variable). Control variables are included to measured time and other macroeconomic changes. The methodology used for the research is multivariable regression. The statistical analysis indicates that the impact of joining the EU has been positive on the country´s trade.

Paper/Performance Presentation Group 11

The Effects of Video Modeling Versus Picture Models on Teaching Perspective Taking Skills to a Child With ASD

Presenter: Shannon Kattuvelil
Project Advisor: Karen Copple

Several interventions have been used to teach social skills to children with Autism Spectrum Disorder (ASD). One method that has proven to be effective is video modeling (VM). In addition to video modeling, visual supports and illustrations have also been found to be effective. In the current study, a single subject alternating treatment design was conducted to examine the effectiveness of VM versus picture models (PM) on teaching perspective taking

to a twelve-year-old diagnosed with ASD. The participant failed the Sally Anne baseline test, which demonstrated difficulty with perspective taking. Intervention consisted of fifteen sessions for both treatment types: A, VM was alternated with B, PM based on random sampling without replacement. In order to maintain control between the approaches, three separate social scenarios were created in video and picture forms. For each of the 15 treatments, the participant was asked to randomly draw a social scenario from a box and answer four questions regarding the scenario. While VM showed a higher mean for correct responses compared to PM, a t-test for independent measures revealed that there was no significant difference between the treatments. While a significant difference did not exist, VM and PM have been shown to be effective in teaching perspective taking skills. The PND for video modeling was found to be 86%, while the PND for picture models was 100%. This reveals that both interventions were effective, but PM was slightly more effective.

The relationship between emotional intelligence and academic performance in a child diagnosed with Autism spectrum disorder

Presenter: Ashley Holker
Project Advisor: Karen Copple

In this study, the author aimed to increase emotional intelligence in a child diagnosed with Autism spectrum disorders and to determine whether or not their was a relationship between emotional intelligence and academic performance in school. A Single Subject Design (SSD) was conducted with a male aged 9 years. Social/Emotional and academic information was obtained from school records (i.e., individual education plan (IEP), psycho-educational report, and report cards). Pre-test and post-test measures included an evaluation using the TRIAD social skills assessment (TSSA). The experimental phase consisted of the implementation of the Emotional ABC's program. Additional research is needed in the field of pragmatic language and the impact of emotional intelligence on academic performance in children on the Autism Spectrum.

Do you mind? Exploring the effect of mindfulness exercises on tantrums and other challenging behaviors in a child with Autism

Presenter: Maria Veronica Lardizabal
Project Advisor: Linda Weems

Currently, there are 1 in 68 school-aged children who have been diagnosed with autism spectrum disorder. Epidemiological research indicates that the prevalence of autism spectrum disorder is gradually increasing. Children with autism have markedly more frequent tantrums than their same-aged, neurologically typical peers. Adherence to behavioral patterns and issues with cognitive processing often make children with autism feel overwhelmed, thus, causing them to have more frequent tantrums. Applied behavioral analysis (ABA) is the current and primary intervention utilized to treat the challenging behaviors of children with autism. Emerging research regarding mindfulness-based techniques suggests that these techniques may be effective in decreasing challenging behaviors in children with autism. This current research seeks to investigate the effectiveness pre-ABA therapy mindfulness exercises have on decreasing tantrum behaviors, and other challenging behaviors, during ABA therapy sessions on a child diagnosed with autism spectrum disorder.

Music to My Integration

Presenter: Camille Hernandez-Morris
Project Advisor: Rachel Lingnau

Dysregulation due to sensory sensitivities is on the rise. The negative behavioral consequences that arise in social situations due to the responses to these sensitivities needs to be proactively addressed. Research studies have demonstrated a significant impact of music on improvements in mood and behavior. This study investigated the behavioral effects of music exposure in the classroom in preschool children with sensory sensitivities. This study utilized a quantitative, single group, ABA design. The participants were four preschool children with sensory sensitivities who demonstrated observable maladaptive behaviors. An ANOVA for repeated measures was calculated to analyze the results. Results indicated that there was no significant difference in the maladaptive behaviors of children when music played in the classroom.

Educating Preschool Staff: A PrAACtical Look at Complex Communication Needs in the Classroom

Presenter: Genevieve Norris
Project Advisor: Karen Copple

The purpose of this research is to identify whether or not the intervention of a presentation addressing augmentative and alternative communication

(AAC), will increase communication opportunities for preschool-aged children, who have complex communication needs. A pretest was given to measure the average communication opportunities provided by teachers and instructional assistants, to children with complex communication needs in a preschool classroom. Data included documenting the number of times a child had the opportunity to make not only requests, but also to comment, and answer questions. Observations also included how staff provided opportunities in other settings (i.e., art, circle time, and math). Following the initial observations, preschool staff viewed a presentation informing them of what augmentative and alternative communication is, who falls under the umbrella of having complex communication needs, and a demonstration of how to implement alternative communication into multiple settings. Following the presentation, an additional three observations were completed to measure the effect of the presentation on staff members. A t-test for repeated measures was used to answer the questions presented in this study. Outcomes are hypothesized to show an overall increase in communication opportunities following the AAC presentation.

Integrating Children: Experiences of Typically and Atypically Developing Learners

Presenter: Kalin Day
Project Advisor: Suzanne Swift
Award Winner

Research has shown that educational integration is beneficial for students with moderate to severe disabilities in numerous ways. Does co-education benefit typically learning children as well? To investigate this phenomenon, this study integrated 15 typically developing 4th grade learners with atypically developing learners with moderate to extensive needs during three 30-minute sessions (one-group pre-test/post-test design). Descriptive data revealed positive trending data, and a repeated measures t-test also showed that typically developing learners gained significant benefit from their integration experience. Likert scale questions showed increasing positive perspectives regarding others who differ from self, as well as increased knowledge about persons with disabilities. Typically developing learners increased their social interaction skills with students receiving special education services during and following the integration periods.

Contrasting a Speech Generating Device and Picture Communication on a Young Person's Vocabulary Acquisition

Presenter: Jennifer Schlitt
Project Advisor: Karen Copple

This study examined whether picture communication symbols (PCS) or a speech-generative device (SGD) had a greater effect on vocabulary acquisition for a young person with limited verbal language. The secondary focus obtained information via a survey on special education professionals' background and training in augmentative and alternative communication (AAC) and their use of AAC with students. A mixed, quasi-experimental paradigm study was performed. A single-subject, alternating treatment design was used to collect data on an 18-year-old male with apraxia and severe communication deficits. The subject participated in 20 sessions, ranging 20-45 minutes per session. Vocabulary words (20) were chosen by random, 10 using PCS and 10 using an iPad (SGD). The researcher hypothesized that the iPad would have a more significant effect on vocabulary acquisition. Secondly, a qualitative survey with 13 questions related to AAC was created and posted on Facebook forums and sent via email to special education professionals. During the single-subject study, all data were recorded as correct or incorrect for each treatment. Independent t-test results ($t(500) = -2.36$, $p < 0.05$) found there was a significant difference using PCS vs. an SGD and vocabulary acquisition. Additionally, 110 special education professionals responded to the AAC survey. The majority felt they were moderately knowledgeable in AAC (51%) and 42% believed AAC was 80-100% beneficial to their students. Future research is needed to study the effects of vocabulary acquisition and AAC use with young people and adults with apraxia, and those with other developmental disorders.

Paper/Performance Presentation Group 12

Apples or Bananas A Contrast of Therapies for the Remediation of Severely Unintelligible Speech

Presenter: Tori Patterson
Project Advisor: Karen Copple

Communication is vital in order for children to get their needs and wants met. The purpose of this study was to investigate the effect of two different therapy approaches for children with severely unintelligible speech. This single

subject alternating treatment design included three male participants between the ages of four to five who lived in rural areas in Eastern New Mexico. It revealed that neither the Hodson's Cyclical Approach nor the Distinctive Features Analysis significantly differed in their effects to remediate severely unintelligible speech. These results have added to the knowledge practicing Speech Language Pathologists (SLP) need to efficiently and effectively treat and remediate severely unintelligible speech.

Bombard the Brain

Presenter: Dianne Manalo
Project Advisor: Suzanne Swift

Children with phonological disorders constitute a large percentage of the clinical caseloads of speech-language pathologists. Thus, finding the most effective and feasible treatment technique is vital for the suppression of phonological processes. Existing evidence supports the use of auditory bombardment to facilitate correct productions of sounds, and further research shows positive outcomes when a language component is used in phonological intervention; however, this method is still not fully implemented. The purpose of this study sought to determine the effectiveness and efficiency of auditory bombardment stories in the remediation of phonological processes. A single-subject, sequential alternating treatments design was used with a 5-year-old girl diagnosed with a phonological delay. Two comparable phonemes were chosen as target sounds for therapy: f/v without auditory bombardment stories (TX1) and s/z with auditory bombardment stories (TX2). The subject received therapy for thirty-two days for thirty minutes a day. Following all treatment sessions, two repeated measures ANOVAs were used to determine the significance of pre- and post-test scores for each phoneme. A separate independent measures ANOVA was subsequently used to compare the two types of treatment to each other. The results indicated that although both treatments led to gains in the subject's overall phonological abilities, auditory bombardment stories did not lead to significantly higher change scores than therapy without auditory bombardment. Further research is necessary, with suggestions on using a group design in a school setting and providing more parent training for home programs.

The Effect of an /r/ Speech Buddy Tactile Tool During Drill Therapy

Presenter: Katherine Barnett
Collaborator: Madison Criswell
Project Advisor: Laura Bucknell

The /r/ phoneme is a challenging sound to remediate. Often, children do not make substantial progress on /r/ sound placement when provided traditional speech therapy. Several studies indicated the efficacy of the /r/ Speech Buddy Tool when compared to traditional therapy, but its use during drill therapy remained to be explored. Therefore, the purpose of this study was to determine the effectiveness of an /r/ Speech Buddy Tool during drill articulation therapy. This study aimed to benefit speech-language pathologists and their clients by providing a more efficient approach to /r/ remediation. An ABAB single subject design with two /r/ impaired school-age children, one experimental and one control subject, were used to facilitate the experiment. Baseline and post-testing measures through the Secord Contextual Articulation Tests (S-CAT) gauged each subject's progress throughout treatment. Subjects were provided treatment with or without the /r/ Speech Buddy Tool 4 times per week for 20 minutes each session and a total of 7 weeks. The results of the study indicated both treatments increased /r/ accuracy placement, with neither treatment working better than the other. This indicates that SLPs, their clients and parents could utilize either treatment type and obtain similar outcomes. Further research needs to be conducted to determine the effectiveness of the /r/ Speech Buddy Tool. A broader study with an increased sample size of matched subjects with the same age, temperament, and speech sound disorder history should be performed.

Focused Auditory Stimulation: The Impact on Discrimination and Production of Single Word Targets

Presenter: Shelbi Sexton
Project Advisor: Suzanne Swift

This study investigated the effectiveness of focused auditory stimulation from the Cycles Approach with a child who exhibited a phonological speech disorder. Focused auditory stimulation is widely used as an intervention technique, yet there are inconsistencies in previous studies. The purpose of this study was to determine if this procedure could improve accuracy and discrimination in single word productions of children with speech sound disorders. A single subject simultaneous treatment design was used as part of an intervention approach to examine the effects with and without the use of

the focused auditory stimulation. Results of this study revealed that focused auditory stimulation does not have an effect in the remediation of speech sound productions or auditory discrimination.

Watch This: Improving Articulation with Visual Phonics

Presenter: Audrey Stallings
Project Advisor: Dwayne Wilkerson

The purpose of this study is to compare the difference between two treatment approaches related to the production of target speech sounds during articulation therapy. The production of speech sounds elicited using See the Sound-Visual Phonics (STS-VP) hand gestures with auditory and visual models (Treatment B) were compared to speech sounds elicited using auditory and visual models only (Treatment C). STS-VP is a system of 46 hand cues representing motor production characteristics of spoken English phonemes. Presently, limited experimental research exists demonstrating the efficacy of using STS-VP in treating speech sound deficits. This study used an experimental, single-subject, alternating treatment methods design to assess the results of applying two different methods in the treatment of speech sound disorders in children ages 3-10. Baseline (A) was conducted before applying Treatment B and Treatment C on alternating days for ten sessions. Baseline (A) was conducted again after the completion of all treatment sessions. The overall results comparing the two treatment conditions supported this study's hypothesis that the integration of STS-VP cues would result in greater speech sound production accuracy. Although these preliminary findings support the use of STS-VP in treating speech sound disorders, further research is recommended due to this study's confounding variables and limitations.

Say What You Hear

Presenter: Taylor Reilly
Project Advisor: Suzanne Swift

Limited research has been performed regarding the benefits of using phonological awareness therapy to treat childhood apraxia of speech (CAS). Evidence shows that children with CAS show deficits in phonological awareness tasks. Treating these deficits may help decrease characteristics of the disorder and improve intelligibility. This paper aims to compare the effectiveness of using a traditional apraxia of speech approach to a traditional apraxia of speech

approach combined with phonological awareness intervention to treat CAS. A quantitative single subject A-B-B-B-A-C-C-C-A alternating treatments withdrawal design was used. One female aged 7 was treated during 30-minute sessions, 5-times-a-week, for 9 weeks. Results of the study indicated that using a combined treatment approach did not reduce the overall characteristics of the disorder or increase intelligibility when compared to a traditional apraxia of speech approach.

The Effects of HIppotherapy on a Child With a Speech Sound Disorder

Presenter: Nicole Ezcurra
Project Advisor: Karen Copple
Award Winner

Previous studies had demonstrated that the repetitive movement of a horse's gait was able to enhance motor and sensory neural networks, resulting in increased motor strength and coordination, respiratory function, and somatosensory feedback for individuals with developmental or neuromuscular disabilities. Speech-Language Pathologists (SLPs) implemented hippotherapy as a treatment approach to facilitate the sensory feedback an individual received during treatment. Previously conducted research had shown that not all individuals benefited from traditional articulation therapy approaches, as some individuals had complex motor, emotional, and/or sensory needs that interfered with progress. The aim of this quasi-experimental study was to assess the impacts hippotherapy had on a child who was diagnosed with a severe speech sound disorder. Data were collected before and after an eight-week hippotherapy treatment program using the Sounds-in-Words Subsection of the Goldman Fristoe Test of Articulation-3rd Edition (GFTA-3). The subject's speech sound productions without error (no omissions, substitutions, additions, or distortions), percentage of consonants correct (PCC), percentage of vowels correct (PVC), percentage of phonemes correct (PPC), and the subject's manner and place of articulation of sounds were assessed. A repeated measure t-test was conducted to assess significant differences among the mean scores before and after treatment. An overall statistically significant improvement in speech sound productions was observed ($p<.05$). This finding was used with the intention of providing additional support that the addition of hippotherapy may be an effective alternative treatment approach to improving a subject's speech sound productions.

Paper/Performance Presentation Group 13

A Comparison of Occupational Satisfaction Amongst Speech-Language Pathologists Employed in Medical, School and Early Intervention Settings

Presenter: Kylee Kinnamon
Project Advisor: Suzanne Swift

Career satisfaction is one of the most researched topics in organizational behavior and education (Blood, Ridenour, Thomas, Qualls, & Hammer, 2002). There is much information pertaining to school-based speech-language pathologists' (SLP) occupational satisfaction, but limited data is available regarding the satisfaction of medically-based and early intervention (EI) SLPs. The purpose of this study was to compare school-based, medically-based and EI SLPs' self-reported occupational satisfaction. This is important to study because large caseloads, increasing accountability demands, extensive paperwork, and feelings of isolation can lead to "deterioration in quality of care and… reduction in the workforce" (Fimian, Lieberman, & Fastenau, 1991). Participants were recruited via the American Speech-Language-Hearing Association (ASHA) and various SLP forums online via Facebook groups. The Job Satisfaction Survey (JSS) (Spector, 1994) and supplemental survey items were presented in electronic format via Survey Monkey. Survey completion took about 10 minutes. Using an independent-measures analysis of variance (ANOVA) to compare overall JSS scores significant difference was identified in the following areas: setting, caseload size, percentage of time spent on paperwork, time not compensated per week, and other stressors including family and finances. No significant difference was identified between: age, years' experience, and region. Collectively, SLPs are satisfied with their careers and report supervision, communication, coworkers, nature of the work highly.

Can You Hear Me Now? Examining the effect of a professional development presentation on educators' knowledge about hearing loss

Presenter: Erin Doherty
Project Advisor: Rachel Lingnau
Award Winner

This study investigated the effectiveness of an informative presentation about hearing loss (HL). The goal of the presentation was to improve educator's knowledge regarding hearing loss, its educational impact, and strategies to use

when working with hard of hearing (HOH) students. Participants included a variety of educators including general education teachers, special education teachers, and paraeducators. A questionnaire about hearing loss measured participants' understanding before, following, and two weeks after watching the hearing loss presentation. Although educators' scores decreased significantly two weeks following the presentation, their scores were still significantly higher than the pretest scores. Results from this study provide preliminary information which supports the addition of a hearing loss presentation as part of continuing education for teaching staff.

Testing for Right Ear Advantage Using Monaural Sound Presentation

Presenter: Shaneise Aragon
Project Advisor: Erin Sherman

Right ear advantage is described as an asymmetry for speech processing. This concept is rooted in the fact that language is dominant in the left hemisphere for the majority of people. In this study, participants were randomly assigned to one of two experimental groups, right ear only directed listening or left ear only directed listening. Depending on their group assignment, participants listened to a three-minute short story in one ear. They were then asked to complete a posttest consisting of ten short answer questions based on the audio they heard. Comparisons between the two groups based on their posttest scores were evaluated to determine if there was a significant advantage for one ear over the other. Posttest scores revealed the right ear group had a mean ear advantage of 80.63% and the left ear group had a mean ear advantage of 81.33%. An independent measures t-test was conducted and revealed there was no significant difference. In conclusion, there was not enough evidence to conclude a difference between the groups to reveal a statistically significant right ear advantage for auditory processing.

Intelligibility of Adults with Severe/Profound Hearing Loss with Cochlear Implants and Hearing Aids: A Comparison

Presenter: Amanda Medrano
Project Advisor: Rachel Lingnau

The aim of the present study is to evaluate and compare the speech intelligibility of adults with severe to profound hearing loss, who use cochlear implants (CI) to those who use hearing aids (HA). Speech intelligibility is the

amount of speech items that are recognized correctly in spontaneous speech. Efficient communication and social interaction require speech intelligibility. Reduced intelligibility has been found to reduce the quality of life for individuals with severe to profound hearing loss. Despite advances in technology, many individuals with severe hearing loss struggle to produce proper speech (Rezaei et al., 2017). A convenient sample of 3 adults with CI's and 3 adults with HA's were selected to participate as speakers. The 6 participants each recited 15 sentences from the Central Institute for the Deaf (CID) Everyday Sentence List. The participants speeches were audio recorded by the researcher. A 40-minute survey incorporating the audio recordings was developed and presented to 60 untrained listeners. The listener's documented their open-ended interpretations of the recordings on the survey. The listeners were able to receive a cumulative score of 45 in each category based on the accuracy of their interpretation. The standard deviation, mean, mode, median, and range were calculated for each category and were compared. Additionally, a t-test for independent means was done to determine whether there was a significant difference between the intelligibility of the two groups.

Listen Up Kids: The Effects of Hearing Education in Elementary Students

Presenter: Sarah Keppinger
Project Advisor: Rachel Lingnau

The world has become an increasingly noisy planet. Education on hearing and hearing protection must become a priority in order to decrease the risk of noise induced hearing loss. The purpose of this study was to assess fifth and sixth grade preferred volume level and whether hearing education effects headphone volume levels. The study consisted of a pretest posttest experimental design and participants included 37 fifth and sixth grade students. The pretest was comprised of a short questionnaire and choosing a preferred volume level with headphones on a personal listening device. The students then participated in a hearing conservation presentation made available by the US Department of Health and Human Services. A posttest was completed immediately after the presentation and a maintenance test was completed three weeks after the presentation. During the pretest the average decibel level that students chose was 75.24. Results from the hearing education found significant difference in decibel levels immediately after the presentation. Decibel levels were slightly lower post three weeks after the presentation. The majority of students did not present with a risk of noise induced hearing loss from headphones; however, lower decibel levels may have been due to the Hawthorn Effect or previous education. Hearing education did make a significant difference between pretest and posttest decibel

measures. Further research should focus on larger sample size, using only one song rather than providing two song choices and broadening the assessment of hearing knowledge and protection.

Speech Intelligibility Rating Discrepancies Between Trained and Untrained Listeners

Presenter: Jana Carn
Project Advisor: Dwayne Wilkerson

The purpose of this study was to compare intelligibility ratings of trained and untrained parent listeners for children with speech sound disorders (SSD). Based on evidence in the literature review, this study will provide further information on the effects of intelligibility rating scores between male and female, trained and untrained listeners. Single word utterances of a child with impaired speech were presented to trained male and female speech language pathologists (SLPs) and untrained male and female parents. All listeners selected from a word bank the word they perceived as the intended word spoken. Selected answers were compared to the actual word spoken and differences were compared. Results from this study indicated that when using a multiple choice selection process of monosyllabic words to determine intelligibility, there is no significant difference between gender and listener experience.

Speech Intelligibility of International Civil Aviation Organization Spelling Alphabet Versus Standard American English During Radio-Transmission

Presenter: Jennifer Nielsen
Project Advisor: Nicole Bougie

Clear radio communication is essential to safe and successful operations in many work environments. Radio communication is comprised of two parts: the physical instrumentation and the human operator. Although steady improvements have been made to the instrumentation of radio communication, the impact of human variables requires further investigation. The civil aviation industry developed the International Civil Aviation Organization's (ICAO) spelling alphabet to improve radio communication effectiveness. Use of the ICAO system constitutes a speaker-based modification to improve speech intelligibility. This post-test only control group experiment (n = 33) examined if use of the ICAO spelling alphabet increases speech intelligibility of cardinal numbers during radio communication. Results did not show a significant increase in speech intelligibility when ICAO numbers were spoken.

Paper/Performance Presentation Group 14

Burning Ammonium Nitrate and Trisomy 18: Are they related?

Presenter: Wendy Contreras
Project Advisor: Suzanne Swift

On July 30, 2009, an ammonium nitrate fertilizer plant exploded in Brazos County, Texas. The next year five infants were born in the county with Trisomy 18. The Birth Defects Surveillance and Epidemiology Branch (BDSEB) of the Texas Department of State Health Services determined that these five infants formed a birth defect cluster. This two-part study was undertaken to determine if smoke from ammonium nitrate fires was related to the incidence of trisomy 18 in Texas during years 1999-2013. For the first part of the study, a map analysis was conducted to compare trisomy 18 incidences among low birth rate counties in Texas. This study was inconclusive, but illustrates the difficulties of trying to determine probabilities in spatial cluster analysis. For the second part of this study, records of ammonium nitrate fires in Texas were compared to incidence rates of trisomy 18 by county from 1999-2013. A Bayesian analysis was completed to see if the relative risk for having a baby with trisomy 18 was increased by exposure to the fires. The analysis indicated no increased risk for trisomy 18 for those counties reporting fires in that year or the previous year. However, difficulties with obtaining accurate fire data were encountered. The study could be repeated with more tightly defined fire parameters to see if there truly is no difference in relative risk.

Never Enough Time in the Day!

Presenter: Sarah Slaton
Project Advisor: Suzanne Swift

Many school-based Speech-Language Pathologists (SLPs) are required to take on large caseloads to address the communication skills of our children in the United States. These SLPs are burdened with large caseloads with or without assistants to treat an array of delays and disorders, such as articulation, language, fluency, AAC, voice, etc. The current research concerning time spent with each student in therapy and optimal dosages of therapy is limited, resulting in treatment that may be less than ideal. Most of the current evidence supports the theme that increased time and frequency in therapy will yield better results in achieving automaticity and retention of the skills acquired through

communication therapy. The purpose of this study is to collect data of current practice and lay the groundwork for future research on optimal intensities of therapy. Participants included 203 school based SLPs in public schools, charter schools, private schools, contract therapists and teletherapists. The average time spent in therapy with each individual student indicates an average of 35.51 minutes addressing each type of therapy service each week. The most common frequency demonstrates 61.43% of participants reporting 2x/week at 30 minutes most closely matches their traditional schedule and the average group size is currently 4.47 students. The evidence suggests that caseload size is improving nationally, but the average student is receiving on average less than 18 minutes, twice a week in therapy to improve the skills that they use all day, every day.

Feeding Intervention in Skilled Nursing Facilities: An Educational In-service

Presenter: Jayme Gage
Project Advisor: Suzanne Swift

For residents in a skilled nursing facilities (SNF), nutrition and hydration are at the forefront of health and wellbeing. It is imperative that individuals responsible for feeding residents are adequately trained in feeding and swallowing disorders and are confident in their intervention abilities. Studies have shown that there is an overwhelming deficit in education regarding these disorders among these individuals. This lack of knowledge can have a negative impact on the residents and can put them in danger for chronic and severe health difficulties. It was found that using educational in-services can enhance the knowledge and confidence in participating individuals. A small group, quasi-experimental study was conducted using 13 individuals responsible for feeding in SNFs. Results from pretest and post-test surveys were compared using a t-test for repeated measures to examine the change of knowledge and confidence after attending an educational in-service. Statistics found that individuals who attended the in-service showed a significant increase in knowledge gained, but no significant change in confidence with p levels of 0.00019 and 0.10689, respectively. Overall a significant increase in total raw scores between pretest and post-test was discovered with a p value of 0.01002. It is assumed that following the in-service, participants may have become aware of gaps in knowledge regarding this subject, which could have impacted confidence scores. These results indicated that educational in-services can be used in facilities to educate staff regarding dysphagia and feeding interventions. Further research should be implemented to explore results for greater sample sizes.

Parents of Picky Eaters: What's Eating You?

Presenter: Stacy Martin
Project Advisor: Karen Copple

The purpose of this study was to learn about the parent experience of having children who are picky eaters. A survey was distributed in order to look for correlations between levels of parent stress, openness/willingness to accommodate picky eating and level of/desire for education and training about how to deal with picky eating using a 5-point Likert scale. 238 responses were elicited and Spearman r correlation statistics were used to analyze the results.

Effects of Adding Scent Components to Increase the Intake of Thickened Liquids

Presenter: Cassidy Stradling
Project Advisor: Adrienne Bratcher
Award Winner

The purpose of this study was to explore the effects of adding scent to increase the intake of thickened liquid. Dehydration is a vast problem for individuals who are diagnosed with thickened liquid diets. A mixed-methods experimental design was used to determine the effects of adding scent while drinking thickened water to see if it was more desirable than drinking thickened liquid from a traditional cup. Fifty participants completed questionnaires about their attitudes towards drinking thickened water from both a traditional cup and a scented cup. A t-test of repeated measures was used to calculate the results from the data collected. Results: There was statistical significance between drinking thickened water from a traditional cup and The Right cup. Conclusion: Findings proved that drinking thickened water from The Right Cup increased an individual's desire to drink thickened liquid as opposed to a traditional cup.

The Interrelationship between swallowing and Vocal hygiene on individuals diagnosed with Scleroderma

Presenter: Gabrielle Jordan
Project Advisor: Nicole Bougie

This research aimed to identify the relationship between increased knowledge of the swallowing process and the increased awareness of vocal hygiene, on individuals with a medical diagnosed of Scleroderma. Scleroderma

is an autoimmune rheumatic disease that causes the overproduction of collagen in the soft tissue of the body. Participants: The participants selected were from a local support group which consisted of 13 females and 2 males. The support group met at a local Community Center the first Saturday of the month. Methodology: This study was conducted over a 6-week period which included a presentation of strategies, printed handout, pre-test, and post-test surveys, recording using the PRAAT and reading the grandfather passage. Conclusion: There was statistical significance with the increase of Quality of Life pertaining to the participants swallowing. The PRAAT indicated a statistical significance in the decrease in Shimmer while no statistical significance was noted for Jitter. The GRBAS indicated a statistical significance pertaining the vocal quality produced during the reading of the Grandfather Passage. There was no statistical significance of an increase of Quality of Life measured through the Voice-Related Quality of life.

Paper/Performance Presentation Group 15

Non-word repetition accuracy and exposure time in Punjabi speaking English language learners

Presenter: Jaspreet Bains
Project Advisor: Laura Bucknell

Defining a language disorder in the bilingual Punjabi-English population in the United States has proven to be a bit of a challenging topic for researchers. There is a large amount of research that focuses on bilingual language assessment; however, there is little research that investigates children whose first language is Punjabi that may have a specific language impairment (SLI). This is a study cross-sectional, causal comparative study that investigates a child's exposure to English by time and primary language (L1) background. A background questionnaire was given to parents/guardians of children in the study. This questionnaire asked the following questions; primary language spoken in home, age of arrival, months of exposure to English, and gross family income of parents/guardian. The non-word repetition task from the Comprehensive Test of Phonological Processing – 2 (CTOPP-2) was administered. This subtest from the CTOPP-2 was used to compare word repetition scores with exposure time to English and L1 background. Children were put into three categories of exposure to English; less than 12 months, 12-24 months and 24-36 months.

The Effectiveness of a Traumatic Brain Injury (TBI) Awareness Program for Parents of Young Children

Presenter: Kerri Brewer
Project Advisor: Adrienne Bratcher

A Traumatic Brain Injury (TBI) is a complex injury to the brain in which the brain impacts one or more surfaces of the cranial cavity or a foreign object penetrates the skull and brain. There are numerous ways to sustain a TBI. Certain children are more at risk for sustaining a TBI than other children; therefore, parents should be able to recognize whether his or her child is at an elevated risk for sustaining a TBI. Before the researcher sustained a TBI in 2008, neither the researcher's parents nor the researcher knew much about the causes, symptoms, and potential consequences of a TBI. The goal of presenting this information to parents of young children was to educate the parents and to equip parents to discuss with his or her child the importance of brain safety. The researcher's approach utilized a scheduled meeting time, in which participants completed a pretest, attended an awareness program about TBI, and completed a posttest before leaving. This design was chosen to prevent a low response rate. Attending a TBI awareness program resulted in an increase of posttest scores, resulting in a 29.44 percent improvement from the groups' collective pretest score to the posttest score. While no significant difference was found using a Pearson Correlation, significant difference was found using a repeated measures t-test. Since this study utilized a small sample size, it is recommended that the sample size be expanded to include more participants and parents of children younger than elementary school.

Preschool Story Comprehension and Recall in Spoken Story Telling and Tactile Story Telling

Presenter: Lauren Rodriquez
Project Advisor: Karen Copple

This research study examined whether tactile manipulatives during reading increased story recall. Traditionally, preschoolers are read to with verbal and visual input but not provided with manipulatives to touch and associate with the story. Six classrooms were involved at Parkview Early Literacy Center. Three classes were read a book with just verbal and visual input. Three other classes were read the same book with the addition of tactile input. This involved passing around manipulatives referenced in the story and allowing the students to touch the manipulatives. After listening to the story, each child was asked to answer five

closed form questions about the story. Scores were awarded for each story detail the child recalled. The data were analyzed using an independent measures t-test. Raw scores revealed that the experimental group was able to recall slightly more details than the control group; however, no statistical significance was found.

Does Color Affect Memory for Sight Words in Beginning Readers?

Presenter: Randi Wood
Project Advisor: Karen Copple

Sight words have been an important skill in an individual's reading abilities. If an individual was unable to read or unable to read fluently with limited comprehension, it could affect all content areas. Sight word instruction can increase fluency, comprehension, and memory skills. Research has shown that the ability to recall words can be increased when color is presented. The age at which children enter school and learn to read is intuitively an important factor in developing reading achievement (Suggate, Schaughency, & Reese, 2012). The aim of this study was to examine the affect that colored paper had on memory retention. This causal comparative design measured the significant effect of memory retention with red and blue paper compared to white paper. This study included a pretest, four weeks of treatment, and a posttest. Results revealed there was no significant effect on increasing memory retention when using red and blue paper compared to white paper when learning sight words.

Up Up and Away with Language: Measuring the Effect on Language through Literacy with Speech Bubbles

Presenter: Amanda Ramirez
Project Advisor: Erin Sherman

The term hyperlexia, as defined by Silberberg and Silberberg (1967), is an individual ability to decode and ""recognize certain words on a higher level than their ability to comprehend and intergrade them."" Individuals with hyperlexia are not explicitly taught decoding skills, instead learned rules that govern decoding on their own without instruction. Hyperlexia is often diagnosed co-morbidly with a developmental delay, such as Autism Spectrum Disorder. With both Autism and hyperlexia comorbidly existing together, it may be extremely beneficial to use a higher cognitive skill, such as decoding, to help boost a skill that may be impaired, such as language.

This single case study looks at a specific treatment provided to a six years old, who has shown characteristics of Hyperlexia since the age of two years old and was diagnosed with Autism at the age of three years old. This study was used to discover whether the use of books containing speech balloons in intense therapy has a positive relationship on expressive and receptive language skills."

Technology Versus Paper: The Study of Reading Comprehension in Fifth Grade Students

Presenter: Sydney Parker
Project Advisor: Adrienne Bratcher

The overall purpose of the study was to research the reading comprehension effects of 5th grade students who read on technology based material versus paper based material. Due to an increase of technology in society, student's reading methods and reading comprehension levels were affected. The study included 5th grade, regular education students, and it was a randomized control study. Students were randomly assigned a reading passage, which was presented on a technology based format or presented on a piece of paper. Following the reading passage, the students were assigned a questionnaire that pertained to the reading passage. There were ten questions within the questionnaire, which included five multiple choice questions and five open-ended questions. Following statistical analysis, there was no significant difference between students who read the reading passage on a technology based format (i.e., laptop) versus paper based format. However, it was found students who read the passage on paper had a larger number of high scores compared to the students who read the passage online. A contributing unknown variable that may have impacted the outcome of the study was the students awareness of how their performance on the questionnaire would not impact their class grade. Therefore, some students may not have taken the study as seriously as others. Further research for this area would be beneficial, because technology effects a child's reading comprehension and overall a child's education in today's society.

Emojis: Just Another Distraction, or a New Teaching Tool? – A Pilot Study

Presenter: Kelly Tanner
Project Advisor: Karen Copple
Award Winner

The purpose of this study sought to determine if common digital images such as the emoji can be used to increase vocabulary acquisition. The researchers examined a group of 65 students between the ages of 14-16 years old. Participants were enrolled in a mainstream 9th grade English course and were beginning to prepare for the Scholastic Aptitude Test (SAT). All students were from the surrounding area of Minneapolis, MN. Informed consent and assent were obtained and confidentiality was maintained by assigning an alphanumeric code to each participant. The pre-test presented participants with 33 vocabulary words with four multiple choice answers. Following the pre-test, instruction was given for three days to both groups. The experimental group was given a modern visual aid (emoji) paired with each word's definition while the control group was given only the definition of each word. A post-test was completed following instruction and gain scores were examined. Results showed no significance between emojis and vocabulary acquisition.

Paper/Performance Presentation Group 16

POWERpoint: Strengths in Presentation

Presenter: Lisa Homer
Project Advisor: Suzanne Swift

PowerPoint presentations are often used as a teaching tool, but how they are used varies greatly. The focus of this study is to determine if one method of presentation proves to be more effective than another when introducing new information to college students. An experimental design will be implemented by using three different groups of college students enrolled in a summer CDIS course at Eastern New Mexico University. A non-class-related topic, "Snakebites in the United States," is chosen as the subject material. Students are to be given a pre-test consisting of ten content-related, fill-in the blank questions to determine prior knowledge. The presentation for group one will consist of slides without visuals that will be read word-for-word. Group two will be presented with slides that include pictures, but very limited verbal information will be given. The presentation for group three will contain slides with bullet-points referring to the main idea, and the presenter will elaborate on topic points. After each presentation, students will complete a post-test consisting of ten content-related, fill-in the blank questions.

“Pitch-ure” this: Effects of Vocal Pitch on Memory

Presenter: Emma Duffy
Project Advisor: Karen Copple

This study explored the effect of a speaker’s pitch range on content memory in people ages 18-25. This study was conducted online using Google Survey. In this study, there were 2 experimental groups. The research design of this study was a one-shot case study. Each group received a pre-recorded audio message with 1 of the 2 speakers. The speaker’s pitch ranges were as followed: low pitch range (a synthetic male voice) and a high pitch range (synthetic female voice). All participants were randomly assigned to 1 of the 2 groups. Immediately following the audio recording, participants were asked to fill out a quiz comprised of multiple-choice questions over what they have retained from the clip. Immediately following the quiz, participants were given a questionnaire that asked questions regarding any previous knowledge on the topic. Results from this study were analyzed using a t-test for independent samples. Results were analyzed to determine if a relationship exists between pitch of a speaker’s voice and information retention. Further, results yielded information regarding gender of the participants and gender of the speaker in information retained. Results from this study could have a potential impact on how speaker’s present information in order to increase retention.

The Effects of Hydration on Memory and Recall in Older Adults

Presenter: Elizabeth Griego
Project Advisor: Linda Weems

Many older adults are not consuming enough water which puts them at risk for dehydration and impaired cognitive function. This study examined the effect of hydration on the short-term memory capabilities in healthy older adults. The methodology of this study followed a quasi-experimental within-subjects research design using a pretest-posttest model. Data was collected from a sample of 15 healthy females between 50 to 65 years old. Participants were tested individually at their home on two separate days under two different conditions; normal (no additional water) and drinking additional water. Participants were tested using a recall list of 12 words. A different list was used for each testing condition. Statistical methods were used for the analysis of the results. The results of the test did not show statistical significance between hydration and short-term memory capabilities before and after consuming additional water.

Work it out! The Immediate Effects of Moderate Exercise on Working Memory

Presenter: Jasmin Salcido
Project Advisor: Nicole Bougie

This study aimed to focus on the effects of moderate exercise on working memory. Sixty individuals were divided into control and experimental groups using a quantitative experimental design. Groups were given a pre-test consisting of a memory task (e.g. digit sequence) before walking for an interval of twenty minutes. The experimental group immediately received the memory task after walking while the control group had a delay of twenty minutes before completing the post-test. Results suggested that there was no increase of working memory on the experimental group and were non-significant than that of the control group.

“Help Me Remember! Music and Memory: Adults Sixty-Five Years and Over with Alzheimer’s Disease”

Presenter: Mallory Massey
Project Advisor: Nicole Bougie

This research compared the effects of classical musical rhythm on an individual’s short-term memory recall when Alzheimer’s disease is present. All 15 subjects were over the age of sixty-five, had a probable diagnosis of Alzheimer’s Disease (AD), and lived in the same assisted living facility. The study was used a withdrawal design. Week one the subjects were pretested, week two they were exposed to therapy without music, week three therapy was provided with music, week four therapy was provided without music, week five therapy had music and week six consisted of post-testing, with and without music. Pre-test and post-test weeks, the subjects were presented three cards per category with no music on day one and two and with classical musical day three and four. During the four weeks of therapy, subjects were presented with colors Mondays, shapes Tuesdays, numbers Wednesdays and letter Thursdays. During weeks three through five, therapy that consisted of “I say, we say, you say”. The researcher would say the cards in order, then the subject and researcher would say them together, followed by the subject saying them. After a minute,cards were then taken, shuffled and handed back to the subject. The subjects were asked to place the cards in the original order they were presented in. This process occurred for all 16 sessions of weeks 2 through 5. The sum of scores for both music and no music for each subject were calculated. The scores were then compared in dependent and independent measure t-tests.

The Effects of Melodic Intonation Therapy on Adults with Dementia to Increase the Use of Activities of Daily Living

Presenter: Lauren Ontiveros
Project Advisor: Adrienne Bratcher
Award Winner

Dementia is a progressive and incurable disease of the mind. As its symptoms gradually increase, there is a steady deterioration of abilities including the capacity to perform activities necessary to live independently. This is frustrating and depressing for individuals who desire to maintain their independence. The purpose of this study is to provide a therapeutic intervention with compensatory strategies to address the difficulties in performing basic activities of daily living (ADLs) that are caused by memory loss and cognitive impairment. One voluntary participant will receive home-based treatment and will complete the intervention program focused on the use of Melodic Intonation Therapy (MIT).

Slowing the Age-Related Cognitive Decline in the Retirement Population using Leisure Activities: Crossword and Word Search Puzzles

Presenter: Paige Thompson
Project Advisor: Karen Copple

The population's life expectancy has increased due to advances within medicine. Research has suggested that the prevalence of cognitive disorders has also increased. When the brain changes with age, it can cause cognitive skills to decrease. These cognitive changes can impact a person's quality of life and can be expensive to treat. The increase in brain games available to the public has encouraged the idea that leisure activities can provide stimulation to keep the brain healthy. Crossword and word search puzzles were selected as the leisure activities for this study, because of their popularity, commercial availability, and inexpensive cost. The purpose of this study is to see if inexpensive leisure activities, such as crossword and word search puzzles, can provide enough cognitive stimulation to slow the age-related cognitive decline in the healthy retirement population. Participant criteria included individuals aged sixty-five or older with healthy cognition/overall health in the surrounding St. Louis area. The study is an experimental pre-test/post-test group design. All participants were given an informed consent and a case history questionnaire, with a randomly assigned number on top. Randomization of the Peabody Picture Vocabulary Test-4th Edition (PPVT-4) forms were used as a pre-test/post-test. All groups were

randomly assigned participants and the level of difficulty of the stimulus items were selected by participants. The results suggested there was no significant difference between experimental and control groups regarding vocabulary growth.

Paper/Performance Presentation Group 17

Generation Z's – Instant or Delayed Gratification?

Presenter: Sarah Dohy
Project Advisor: Adrienne Bratcher

Motivation is the stimulation of active interest in an individual by appealing to their interests (Jackson, 1964). There are many different types of motivation, two of which will be addressed in this study; instant gratification and delayed gratification. This study seeks to understand which form of motivation is more effective for individuals in Generation Z. The sample for this study consisted of 60 Generation Z individuals, with 30 placed into one of two groups; instant and delayed gratification. A pretest was given in the first session, consisting of no reinforcement, and an experimental posttest was given in the second session. During the second session, each group was given an elementary level math worksheet to complete and was provided reinforcement in the form of instant or delayed gratification. The mean task scores of each group were then compared using a t-test for independent measures to evaluate which gratification resulted in greater gains. The pre-test and post-test for each group was also analyzed to find statistical significance for each treatment using a t-test of repeated measures. The results found that there is no significant difference between the change scores of the delayed and instant gratification treatment groups and no significant difference between the pre-test and post-test scores of the delayed gratification treatment group. However, results did find significance between the pre-test and post-test scores for the instant gratification treatment group.

How One Acronym Might Provide a New Tool for Stuttering Therapy! Will EFT Benefit an Adolescent who Stutters?

Presenter: Jordan Stearns
Project Advisor: Adrienne Bratcher

Purpose: This single subject design investigated the Emotional Freedom Technique (EFT) tapping in the field of speech pathology, identified the effects that EFT tapping had on a fifteen year old female and distinguished if there was a relationship between an increase in her self-perception and EFT and a decrease in her stuttering behaviors and EFT. EFT tapping integrates the Chinese meridian system and is said to create a change in behaviors about oneself through tapping on acupressure points; therefore, an EFT tapping program may be a complementary addition to traditional fluency therapy. Method: One fifteen year old female adolescent who stutters, was engaged in a 6-week, four days a week, ABAB withdrawal design for EFT. This design included two pretest/post-test scales; Characterizing Stuttering: Overt Behaviors and the Overall Assessment of the Speaker's Experience of Stuttering for Teens (OASES-T). These assessments measured self-perception and the impact of stuttering on the participant's life, as well as the severity of her dysfluencies. Results: Quantitative data was collected by calculating a t-test for repeated measures. Qualitative data was collected through the information gathered from the OASES-T pre- and post-testing. Conclusions: An EFT weekly tapping routine could potentially have a positive impact on the self-perception of an adolescent who stutters. The participant showed an increase in self-perception using EFT, however; this study did not witness a statistical correlation yielding a decrease in stuttering with EFT tapping. Further research is required to examine the long-term effects of such a program.

Pranayama Yoga Breathing as an Alternative Treatment Method for Stuttering

Presenter: Morgan Borup
Project Advisor: Suzanne Swift

The purpose of this study was to investigate Pranayama Yoga Breathing as a possible treatment method for clients who stutter. The researcher looked at the impact yoga breathing had on stuttering through the use of a single subject design conducted with a participant that stutters. The researcher provided instruction on yoga breathing and collected data by analyzing different speech samples including word lists, sentence lists, a reading passage, and spontaneous speech samples. The frequency of stuttering was determined by looking at the percent of syllables stuttered. The subject was also provided with traditional stuttering modification therapy and the results from this traditional therapy were compared with results from Pranayama Yoga Breathing. The results showed that Pranayama Yoga Breathing produced significantly fewer stuttered syllables when looking at sentence lists and spontaneous speech, but the yoga breathing did not produce significantly fewer stuttered syllables compared to the stuttering modification therapy.

Effects of Haptic versus Altered-Auditory Feedback Dysfluency in Naturalistic Settings

Presenter: Madison Criswell
Project Advisor: Suzanne Swift

Objective: This study compared two types of feedback methods designed to improve dysfluent speech and, by extension, quality of life for people who stutter (PWS). This study examined whether haptic feedback proved more efficacious than auditory feedback in reducing dysfluency. This study also compared the ability of each feedback to successfully generalize in naturalistic environments during realistic speaking situations. Methods: To compare posttreatment effects, a mixed-methods experimental study was conducted using a non-randomized single-subject ABA design without a withdrawal during treatment phase and a non-equivalent control design between subjects. Results: There was no statistical significance in treatment effects between subjects. Conclusion: Findings suggested feedback conditions were more effective during structured speech tasks rather than conversational speech with existing variations across individuals.

Telepractice Therapy: Efficacy with an Adult who Stutters

Presenter: Adrienne Wolfersberger
Project Advisor: Suzanne Swift

This study explored a quantitative, experimental, single-subject ABA design focusing on a telepractice treatment model on a fifty-year old adult female with a stutter and no other impairments. With a large need for speech-language pathologists, telepractice is an effective and convenient therapy model making it so that individuals everywhere can receive the speech therapy services they need. Telepractice has been deemed an effective treatment model and in previous research studies has been proven to reduce the percentage of stuttered words and stuttered syllables in adult individuals with a stutter. The effects that a synchronous, telepractice treatment model focusing on stuttering modification techniques has on percentage of stuttered syllables and stuttered words in reading and conversation were investigated through this study.

Facilitating Independence for Adults Who Stutter: The Effect of Maintenance Programs on Long-Term Fluency

Presenter: Kayla Lee
Project Advisor: Suzanne Swift
Award Winner

Purpose: This single-subject study aimed identify the importance of speech-language pathologists facilitating the independence of clients who stutter for continued success beyond the therapy room. Although improvement of fluency, for persons who stutter, during treatment is well-documented, maintenance of fluency post-treatment is far from the norm. 84% of persons who stutter relapse despite improving fluency during treatment with a speech-language pathologist (National Stuttering Association, 2012).
Methods: The participant completed 6 weeks of daily fluency intervention. Fluency and quality of life measures were recorded before and after intervention. The participant then completed six months of a self-maintenance program; the participant's fluency and quality of life measures were recorded after three- and six-month points of the maintenance phase. Fluency was measured by percentage of syllables stuttered (%SS). Quality of life was measured using the Overall Assessment of the Speaker's Experience of Stuttering (OASES).
Results: Statistical analysis of pre and post-test records revealed significant increase in fluency and quality of life ratings from intervention. Statistical analysis of the initial post-test and two post-tests during the maintenance period revealed no significant decrease in fluency or quality of life measures.
Conclusion: The results suggest the effectiveness of both speech therapy intervention for the increase of fluency and self-maintenance programs for the long-term maintenance of improved fluency. This study supports the use of maintenance programs as an effective method of facilitating the independence of adults who stutter for fluency lasting far beyond the therapy room."

Paper/Performance Presentation Group 18

Stress Factors and Levels of Stress in Speech-Language Pathology Graduate Students versus Practicing Speech-Language Pathologists

Presenter: Melissa Wilson
Project Advisor: Suzanne Swift

This study examined the levels of stress and types of stressors in working speech-language pathologists (SLPs) compared to students currently enrolled in speech-language pathology graduate programs. Research on the levels of stress in speech pathology graduate students is limited compared to the research on the levels of stress in practicing SLPs. The purpose of this study is to compare these two factors in both populations to determine the highest levels of stress affecting each population. Data was obtained through surveys completed by 63 practicing SLPs and 1,232 students currently enrolled in speech pathology graduate programs. These results are important for graduate students as they leave graduate school and become practicing SLPs.

The Effects of Vocal Warm-Ups on Vocal Range in Adult Choir Singers

Presenter: Toni Saldana
Project Advisor: Karen Copple

Studies based on vocal warm-up with choir singers were gathered to determine the effects of vocal warm-ups on vocal range. The study tested the vocal range in 40 choir members: 10 sopranos, 10 altos, 10 tenors, and 10 basses. Before the study, the participants were given a questionnaire asking various questions about their vocal condition for the day. Vocal range was tested with the assistance of a pianist with a bachelor's degree in music, by using the piano to play half notes scaling down to the singers' lowest comfortable note, then scaling up to the singers' highest comfortable note. Data were collected of each participant's vocal range. The participants were split up by voice type then divided randomly into two groups: the experimental group and the control group. The experimental group proceeded with a ten-minute vocal warm-up led by the pianist. A post-test of all the participants' vocal range was taken. Results indicated that there was no significant difference between the experimental and control groups; vocal warm-ups did not significantly affect vocal range.

Finding My Voice

Presenter: Jamie Carissa Plata
Project Advisor: Nicole Bougie
Award Winner

The author investigated the effectiveness of transgender voice therapy delivered via telepractice in lowering the pitch of an adult female-to-male (FtM) transgender. A single-subject quasi-experimental design was used to obtain

data. Pitch values of vocal productions were collected using the PRAAT software. Pretest and posttest scores were analyzed using an ANOVA for repeated measures. Analysis of the results indicated that the participant's voice was significantly lower before and after the treatment.

UP IN SMOKE. Electronic Nicotine Delivery Systems or Cigarette Smoking? Comparing Effects on Acoustic Voice Analysis and Voice Handicap Index in the Adult Population.

Presenter: Victoria Cogdill
Project Advisor: Nicole Bougie

Current research indicates that smoking has many negative effects on the human body. Recently, electronic nicotine delivery systems (ENDS) (e.g., vape pens, e-cigarettes, vaporizers etc.) have become a popular nicotine replacement, but little information is available on the effect they may have on vocal health as compared to tobacco cigarette smokers. The purpose of this study is to provide information on the impact of ENDS and tobacco cigarette smoking on vocal quality and function and also inform speech language pathologists (SLPs) about the impact that these habits can have on vocal health. It is important to study because typically smokers are most likely to use ENDS, but almost a third of current users are non-tobacco smokers, suggesting that these devices contribute to addiction and to renormalization of smoking (Mcmillen, Gottlieb, Shaefer, Winickoff, & Klein, 2014). A comparative study utilizing volunteers via convenience sampling was conducted to measure the ratings of 20 cigarette-only smokers, and 20 ENDS-only users on the Voice Handicap Index (VHI) and the voice characteristics as measured by Praat, a free computer software package for the scientific analysis of speech and vocal quality. Participants completed the VHI via self -report and their voice was recorded during sustained phonation of /a/ using the Praat software system on Apple Macintosh OS 10.12.6. Independent measures t-tests were performed on each of the variables and revealed no significant findings between cigarette-only users and ENDS-only users on any of the measures examined.

Just say "AH" Acoustic Measurement of Pertrubation Changes with Vocal Loading in Older and Younger Females

Presenter: Rebecca (Dewbre) Temple
Project Advisor: Karen Copple

The purpose of this research was to identify the relationship between age and vocal quality of shimmer and jitter after a vocally loaded task. Fifteen women aged 18-25 were chosen as well as fifteen women aged 60 and above. All participants completed a survey in order to control for confounding variables. The participants were asked if they smoked, drank, or abused their vocal system regularly (e.g. yelling, acting, or teaching.) Following the survey, participants read a passage for forty-minutes while exposing them to "cocktail" noise at 70dB. Speaking with noise makes the reading task much more difficult because on the force needed to overcome the noise signal, so this type of reading was a vocally loaded task. Acoustic measurements of shimmer, jitter, harmonic-to-noise ratio, and a respiratory measure of vital capacity were obtained before and after the vocal loading task. Statistical measures indicated that their was a significant difference.

Does the Use of Amplification Decrease Vocal Fatigue in One Female Primary School Teacher?

Presenter: Whitney Cordova
Project Advisor: Karen Copple

Voice problems are a common issue among the educational population due to the high vocal load they experience. Vocal loading can be defined as the stress put on the vocal mechanism from speaking over extended periods of time. Vocal loading can cause the voice to become fatigued (Laukkanen, Ilomäki, Leppänen, Vilkman 2008). The purpose of this study was to determine whether teachers who used amplification while teaching decreased vocal fatigue and their vocal load. One female primary school teacher was recruited for this study, alternating with amplification device and no amplification device between each phase of the research. Results of the study showed no significant difference between maximum phonation time and decreasing vocal fatigue when instructing with an amplification device as compared to no amplification device. There was also no significant difference when looking at limiting the vocal load of the teacher.

How Does My Job Effect My Voice? A Voice Analysis of High School and College Soccer Coaches

Presenter: Celina Garcia
Project Advisor: Karen Copple

The coaching profession is a highly demanding job on a person's voice, which increases the risk of phonotrauma and vocal pathologies. The purpose of this research was to analyze jitter, shimmer, harmonic-to-noise ratio, and fundamental frequency in high school and college soccer coaches and compare measurements to published norms. There is limited quantitative information regarding vocal characteristics in high school and college soccer coaches. This study aims to increase quantitative acoustical measurements, by collecting voice samples of the vowel /a/. Three voice samples were collected and analyzed using PRAAT, a voice analysis software program. A questionnaire was used to obtain information about vocal hygiene and use. The majority of coaches reported that they had never received information about vocal hygiene through-out their coaching career. An average mean was used to find jitter, shimmer, harmonic-to-noise ratio (HNR), and fundamental frequency measurements. Statistical difference was found in jitter, HNR, and fundamental frequency in both males and females. Statistical difference was not found in shimmer in males and females. The results indicate high school and college soccer coaches have a lack of control in vibrations of the voice, notable hoarseness, and abnormal pitch averages.

Paper/Performance Presentation Group 19

Technology in the Speech Room: Perceptions of Usefulness Across Therapy Settings

Presenter: Hannah Park
Project Advisor: Suzanne Swift

Technology has integrated itself in all aspects of life, and the speech room is no different. This investigation seeks to analyze the perceptions of speech language pathologists regarding technology and its role in the therapy setting. Research has shown that the use of technology can promote efficiency in treating speech and language disorders, and there are more and more technological treatment options and strategies available to therapists for use during therapy. This study seeks to analyze speech language pathologists' perceptions on the usefulness of technology in speech therapy. 47 speech language pathologists across the United States were surveyed regarding their opinion in regards to technology and its role in speech therapy.

Can you Picture it? The Study between Augmentative and Alternative Communication (AAC) Devices with and without a Motor Planning Component

Presenter: Cassandra Sierra
Project Advisor: Linda Weems

The purpose of the study was to determine if there was a significant difference in completion rate of identification tasks between AAC devices with and without a motor planning component. It compared the time it took 9-12-year-old elementary school aged males to complete a series of communication tasks on two different high tech AAC devices. The Language Acquisition through Motor Planning (LAMP) application (app) was chosen as the motor planning component, and Proloquo2go was chosen as the non-motor planning component. The methodology included an independent measures t-test with experimental groups that consisted of 15 boys who completed selected word sequencing tasks on both devices. A criterion was established which consisted of no previous knowledge or experience using either apps, and boys from 9-12 years of age without previous diagnosis of Autism Spectrum Disorders (ASD). The utterance list comprised of phrases and sentences. Results indicated that there was significant difference between the time it took to complete communication tasks on Proloquo2go ($M = 284.07$, $SD = 83.98$) versus LAMP ($M = 532.87$, $SD = 165.53$) high tech AAC devices. Participants scored significantly faster when identical set utterance tasks were implemented on the Proloquo2Go app than on the LAMP app, $t(28) = 5.19$, $p < 0.00001$, $d = 1.89$. The conclusion indicated that it took less time to complete communication tasks when using the non-motor planning component app, than using the motor-planning component app. Further research is needed to support current findings.

PERCEPTION: Elementary teachers and communication disorders

Presenter: Marisa Chapin
Project Advisor: Adrienne Bratcher

Teachers are the main source of referrals in all areas of communication disorders in the school setting. Children referred for speech-language (SL) evaluations by teachers do not necessarily meet eligibility criterion for services as explained by Botting, Conti-Ramsden, and Crutchley (1997). The study examined teacher's ability to select whether a child should be referred for SL services based on a case study. The teachers were pre-tested, then provided a training by the researcher, and post-tested. The case studies focused on articulation, language, fluency, voice and phonological awareness. A non-equivalent control group of

100 teachers was used which consisted of varying backgrounds, ethnicities, and educational degrees that are employed at elementary schools in Hobbs, New Mexico. These teachers were asked to attend an educational training discussing developmental milestones of children in language, articulation, voice, fluency, and phonological awareness. The information provided from this study allowed the researcher to determine that trainings did increase the accuracy of referrals when provided a case study. Evidence from this study showed that teachers were 49% accurate prior to training and 65% accurate post training. While the results were significant, teachers are not a perfect referral source and further training should be implemented to increase their accuracy.

Pacing Boards: Evidence Based Practice for Visual and Motor Support to Increase Utterance Length

Presenter: Rebecca Lodato
Project Advisor: Erin Sherman
Award Winner

Clinical decision making for ethical and effective treatment relies on a Speech-Language Pathologist's (SLP) use of evidence-based practice. This study intended to fill the gap in research regarding a well-known and widely used therapy tool and answer the following questions: (a) Do pacing boards increase the effectiveness of traditional language therapy in the pediatric population? (b) What is the statistical significance of auditory + visual + motor cues in the pediatric population? A single-subject experimental design was conducted to analyze the effectiveness of pacing boards in increasing mean length of utterance (MLU). One subject, three years of age, received language therapy by means of an alternating design. Evidence-based intervention, such as expansion, recast, and modeling was alternated with and without the use of the external cue of pacing board. Therapy was conducted four days a week for the duration of eight weeks. Fifty-utterance language sample analyses were conducted for weekly data tracking of MLU. Results indicated a significant increase in MLU over the course of the study; however, alternated treatments were not significantly different. Treatment with and without the pacing board proved to be complimentary, increasing MLU by 1.8 morphemes in eight weeks. Future research would benefit from an experimental and control group with an increased length of study to allow for more data.

Person-First Language vs. Identity-First Language: An Opinion-Based Survey

Presenter: Joy Le Page
Project Advisor: Suzanne Swift

The purpose of the current study is to investigate public perspectives of person-first language as compared to identity-first language. Data was collected from 105 individuals through the use of an online survey. The survey consisted of demographic information questions and two sets of Likert scale questions that collected the survey-taker's preferences among the terms and how appropriate the survey-taker feels each term is to use. Data was analyzed to determine if there were patterns due to demographic information and to the individual terms.

Increasing Teacher Knowledge and Perception of the Speech Language Pathologist: online vs live training

Presenter: Seiri Corral
Project Advisor: Adrienne Bratcher

The New Mexico Technical Evaluation and Assessment Manual indicates that if a student has a speech or language impairment that affects his or her education performance he or she qualifies for services as having a communication disorder. A speech language pathologist (SLP) is the professional that is responsible for providing services to said students. An SLP is also responsible for collaborating with teachers and school staff and educating them on the function of the SLP in the school setting. Previous research found that teachers reported to not being fully aware of the function of the SLP in the school setting and that they were willing to participate in training programs to increase their knowledge of the disabilities of students in their classroom. The purpose of this study was to to increase teacher's knowledge and perception of the SLP through an online and live training. One hundred and thirty-nine Pre-Kindergarten through 12th grade educators employed by two rural school districts in the state of New Mexico were invited to participate in trainings held by the primary investigator, a Communicative Disorders graduate student at Eastern New Mexico University. Each school district participated in either the live or online training program. Teachers' knowledge and perception was measured using questionnaires provided by the primary investigator. Participants completed a pre-test questionnaire prior to taking part in a training and then immediately following the training were given a post-test to account for gained knowledge and change of perception.

Paper/Performance Presentation Group 20

Variations: Three Different Scenes Using the Same Lines

Presenters: Kayla Ewing and Darby Cavanaugh
Collaborators: Aric Saiz, Raquel Valenzuela , Bryce Thompson, Sarah Koss, Fred Mete, Desaili Gomez, and Lara Harkness
Project Advisor: Anne Beck

Using a training technique of actors and directors students will demonstrate how applying different given circumstances, settings, goals, and relationships can change a scene fundamentally using the same eighteen lines. The outcome will be the audience will see four completely different scenes.

Spatial and Emotional Depth in Pottery and Film

Presenter: Rein Carrasco
Project Advisor: Rick Shepardson

How do you transduce emotion from clay to a digital image? I work in two realities: physical and digital space. As a ceramicist, I create emotion and spatial depth from a three-dimensional medium by using the shape and creation of the piece. As a director of photography I am called to use light, shadow, and other compositional elements to capture emotion and depth on a two-dimensional scale. I am challenging myself to transduce emotion from one reality to the next. By creating a three-dimensional sculpture then use light, shadow, and composition to photograph the piece, creating a new two-dimensional piece all together in which different angles and lighting techniques will persuade different emotions and create a new spatial depth relationship. I will bring the original piece as well as a film of the making and photographs of the lighted piece itself.

Technological Advancements to the Trumpet: the Haydn Concerto

Presenter: Theron Coleman
Project Advisor: Sidney Shuler

A brief history of the trumpet and how technology has affected the way the instrument is utilized worldwide, especially in relation to the infamous Haydn

Trumpet Concerto. “Movement II - Andante” will be performed together with recent technology SmartMusic.

The History of the Euphonium and Tuba

Presenters: Brianna Gilligan and Cameron Abeyta
Project Advisor: Dustin Seifert
Award Winner

This presentation is about the history of the euphonium and tuba. A projector and screen will be utilized for a PowerPoint presentation of how both instruments were invented, refined, and performed from the 1840’s to present day. A brief demonstration will be performed on both euphonium and tuba, individually, to show timbre and range. In conclusion, a euphonium and tuba duet will be performed to demonstrate their musical qualities in context.

Lost at Sea

Presenter: Kelly Cradock
Project Advisor: Michael Rizza

My poetry explores various aspects of identity, memory, and trauma. In this piece I propose to bring the audience on an emotional journey through unfiltered life experiences. Through internal dialog and storytelling these poems explore identity, gender roles, and separation. The poems leave the audience a bit unsettled because they are vivid and full of raw expression, but non-the-less they will invoke an emotional response. I am inspired by Evan Boland and Emily Dickinson.

Paper/Performance Presentation Group 21

Ringing

Presenters: Max Graff and Kip Hookstra
Project Advisor: Erik Stanley

This presentation is a film revolving around the progressively thinner lines we draw when given the opportunity to make money. The protagonist is a hit-man

deep in debt, seeing a post requesting his services for a large sum of money; he engages with the poster and agrees to kill his target. He finds over the coming days he's been contracted to kill a man that cannot die and proceeds to make progressively worse immoral choices. At the end it is revealed the immortal man posted his own death warrant paying the hit-man for his time.

Of Life and Death

Presenters: Juliette Heacox and Taylor Cannaday
Collaborator: Lacey Harless
Project Advisor: Erik Stanley

Our work is a short movie about kinship and the cycles of life and death in which two sisters travel to confront the God of Death and make him return life to their barren home only to discover that they had not only the power, but also the responsibility to do so all along.

Economics in Dungeons and Dragons

Presenter: Sydney Stenstrom
Project Advisor: Erik Stanley

This is a film that will be shown. A group of Dungeons and Dragons players use the weirdly-written economics rules to amass unusual items on a budget to defeat a great enemy.

Movie

Presenters: Savannah Tolley and Daisy Enriquez
Collaborators: Shady Whitaker, Caitlin Baker, and Nathan Gandara
Project Advisor: Erik Stanley

The film, titled "Aliens Among Us" is a comedy filled anthropological film that depicts the issues of racism, colonialism, and ethnocentrism in an enlightening tone. The purpose of the film is to explore how these issues affect our society, by presenting it in a way that is interesting and easier to understand.

Nightmare 33

Presenter: Darby Cavanaugh
Project Advisor: Rick Shepardson
Award Winner

What do nightmares mean if they mean anything at all? As a student of theatre and film I have dissected and analyzed several works in motion picture and on the stage. But the one experience I haven't been able to dissect are my own dreams.

Using the work of Maya Deren and research from my own nocturnal life I will be answering this question if it can be answered at all. My experimental film Nightmare 33 is a deeper quest towards the answer. By taking one of my own personal nightmares, dissecting it, and transforming it into a motion picture I hope to be able to see it from a director's point of view. I can look at it like I would at any other work. Why are the colors important? Why were those locations chosen? How is any of the content important to the work as a whole and why are they important to the protagonist aka myself?
I would like to share this motion picture experience with you and discuss my own experiences bringing it to life. This will require a projection system and a podium to speak at.

Karma's a Witch

Presenter: Alisha Trujillo
Collaborators: Elena Wimberly, Jorge Ortiz, and Vanessa Miranda
Project Advisor: Erik Stanley

Short film for Sci- Fi of Anthropology

Index of Names