2016 Student Symposium for Research, Scholarship and Creative Achievement
IZE On Mental Health and Mental Illness

RealIZE EmpathIZE MobilIZE

Mental Illness is not what it seems
With victims
To break the stigma

1 in 5 American's experience some sort of mental illness
Individuals on campus who suffer with a mental illness often do so in isolation

Petitions to stop the stigma

Mental Health First Aid Training

Outcomes:
- 992 Interactions
- 91 Volunteers
- 18 Sponsorships
- $3,000 Raised through Commissions
- Creation of the Road to Me
- Donated $20,74 to Project Search and $20,824 to the Grapes for Change
A Century after the Discovery of Relativity

1905: "On the Electrodynamics of Moving Bodies" is published in "Annalen der Physik". The equation E=mc² is added as a supplement to this paper, which concerns around special relativity.

1917: "Cosmological Considerations on the General Theory of Relativity" is published.

- Time and Space are woven together.
- Gravity is a result of large masses bending the fabric of space.
- Prediction of Black Holes.

1931: Belgian priest and cosmologist Georges Lemaître proposes the Big Bang.

1958: Oppenheimer and Snyder show formation of Black holes from collapsing stars.

1943: Oppenheimer participates in the Manhattan Project which utilized E=mc².

2016: Discovery of Gravitational Waves.

- Predicted in 1916 by the Theory of General Relativity.
- Caused by the merging of two Black holes in the size of 29 and 36 solar masses.
- 3 solar masses worth of energy were dispersed in the waves.

1970: Stephen Hawking and Roger Penrose demonstrate a Black hole in General Relativity as a singularity.

1972: Jacob Bekenstein's seminal paper shows that Black holes have entropy.
- They lead to the discovery of Hawking radiation.
The Effects Of Varying Concentrations Of Melatonin And Photoperiod On The Anterior Regeneration Of The Aquatic Flatworm, Dugesia dorotocephala.

Brian Martinez and Diane Bechting, Slippery Rock University, Department of Biology

Introduction:
1. Melatonin (MEL) is a neurohormone produced in the pineal gland that regulates various biological rhythms.
2. The role of melatonin in the regeneration of Dugesia dorotocephala is not yet fully understood.
3. The purpose of this study was to investigate the role of melatonin on the anterior regeneration of Dugesia dorotocephala.

Methods:
- Experiments were conducted in a controlled environment.
- The flatworms were divided into two groups: one group was exposed to light (12:12 light-dark cycle) and the other group was exposed to darkness.
- The effects of varying concentrations of melatonin were studied in both groups.

Results:
- Flatworms exposed to light had a higher rate of anterior regeneration compared to those exposed to darkness.
- The results were consistent across all concentrations of melatonin.

Discussion:
- Melatonin may play a role in the regeneration of Dugesia dorotocephala.
- Further studies are needed to understand the mechanism by which melatonin affects regeneration.

Conclusion:
- Melatonin concentrations above a certain threshold significantly affect anterior regeneration.
- Further experiments are needed to determine the optimal concentration for optimal regeneration.

Acknowledgments:
- This research was supported by the Biology department of Slippery Rock University.

References:

Graphs:
- Graph A: Comparison of anterior regeneration rates between light and dark conditions.
- Graph B: Effect of melatonin concentration on anterior regeneration in light conditions.
- Graph C: Effect of melatonin concentration on anterior regeneration in dark conditions.
Examining Diet for an Effect on a Neurological Disorder, TPI Deficiency

**Hypothesis:**

People are at risk for developing neurological disorders. Since TPI deficiency is a genetic cause of these neurological disorders, this study aimed to examine the effect of diet on TPI deficiency.

**Methods:**

The study involved analyzing data from patients with TPI deficiency and comparing it to a control group. The diet was monitored and analyzed for its impact on the condition.

**Results:**

The results showed a significant difference in the condition between the experimental group following the dietary intervention and the control group. The improvement in the experimental group suggests a potential role for diet in managing TPI deficiency.

**Conclusion:**

This study highlights the potential role of diet in managing TPI deficiency, indicating the need for further research in this area to better understand the impact of diet on neurological disorders.
Development of the Neuralcrest Duct in the American Alligator (Alligator mississippiensis)

Rock, L.J., Behnke, S.J., Smith, T.T.

1. Department of Biology, St. John's University
2. School of Physical Therapy, St. John's University
Assessing the Attention Networks Using fMRI

Conner Smith, Tyler Kuhn, Jennifer Willford PhD, Dai Singhal PhD, Athula Hirat PhD, & Nancy Ivey PhD

Slippery Rock University & University of Pittsburgh, School of Medicine

- Poineer's Model of Attention
- Data Acquisition

- Alerting
- Orienting
- Executive Control

Activated Areas

Future Steps

Support:

Advances
Investigation of the Direct Electron Transfer of Ferritin on Modified Gold Electrodes

Sophia J. Obiwaju, Brittany M. Storun, and Donald C. Zaplen
Department of Chemistry, Slippery Rock University, Slippery Rock, PA 16057

Abstract
The reduction of the superoxide radical anion on the surface of gold electrodes is considered.

Experimental
Experimental results and conclusions

Results and Discussion
The analysis of the experimental results is discussed in this section.

Conclusions
The conclusions are drawn from the experimental results and discussion.

References
A list of references is provided at the end of the poster.

Acknowledgments
Acknowledgments are given to those who contributed to the research.
SOCIAL MEDIA FOR SOCIAL GOOD

1. WHAT IS SOCIAL MEDIA INTENSIVE?
   INTERNATIONAL?

2. METHODS OF RESEARCH

3. FOCUS OF THE CASE STUDY

4. COMPARISON

SOCIAL DIARY

5. RECOMMENDATIONS

6. ETHICS

CASE STUDY CAPTURING SOCIAL MEDIA CONSUMER + DONOR RELATIONS

Kashead Kids International: Using Social Media to Build Consumer and Donor Relations

- Instagram: @kasheadkids
- Facebook: Kashead Kids
- Twitter: @KasheadKids
Organizational Overview

Largest quick-service chicken restaurant in the nation serving more than 150 million meals per year.

Founder Truett Cathy created the boneless, seasoned chicken sandwich in 1946 at his restaurant called the Dwarf Grill.

Privately owned by the Cathy family.

Continues to focus on the Christian values that it was created under (i.e., closed on Sunday).

Purpose: "...to glorify God by being a faithful steward of all that is entrusted to us and to have a positive influence on all who come into contact with Chick-fil-A."

The Situation

In 2012, Chief Executive Officer Dan Cathy made several comments regarding his opposition to same-sex marriage that sparked outrage. These comments were made as the legalization of same-sex marriage was hotly debated around the nation.

- Interview with the Baptist Press where he talked about his opposition to traditional marriage.
- On "The Ken Coleman Show" Cathy was asked about his previous comments, and continued to fuel the fire even more by saying, "I pray God's mercy on our generation that has such a problem.
- Truett's pantry, the organization's food bank, launched a new Facebook page addressing the Chick-fil-a's stance on same-sex marriage.

Crisis Management

To calm it, Chick-fil-A did not handle the crisis the way it should have handled it.

A key statement released from the organization via a company spokesperson addressing the media.

Chick-fil-A has a history of opposing same-sex marriage, a stance it has held for over 20 years. The company has also faced criticism for its support of anti-LGBTQ groups.

By Chelsea Frye
PUBLIC RELATIONS CASE STUDY: CONSUMER RELATIONS AND PR ETHICS AT BALMAIN

Communication

BALMAIN CASE

CONSUMERS

MARKETING

ETHICS

CONSUMER

RELATIONS

INPUT

CONCLUSION

LATENAA RENACQ

LOREN RENARD
Slippery Rock University

A Field Bioassay Method for Examining Effects of Metals from Acid Mine Drainage on Benthic Algae

Sara Ondrak, Michael Vantlinen, Dena De Nicola
Slippery Rock University of Pennsylvania
Department of Biology & Environmental Geosciences

Introduction

Results

Methods

Conclusions

Appendix
CASE STUDY:
The Integration of Crisis Preparedness and Community Relations at Airbnb

Author: Rachel Parker

This study examines how Airbnb combines the public relations concepts of crisis management and community relations to create the company’s “Disaster Response” initiative – ultimately putting a new spin on the idea of the “sharing economy.”

**Economy**
- The use of new technologies and apps to promote the sharing of assets and resources.
- A large sum of people to tackle large tasks or meet needs – peer-to-peer market model allows users a chance to purchase a room, rather than a large hotel chain.

**Response Initiative**
- The tool is activated in a crisis, enabling all booking agreements to be rented out a free room to, while providing accommodations.

**Community Relations**
- Large portion of PR efforts rely on branding Airbnb with a new global image.
- Partner with nonprofits to help the Airbnb community and the cities prepare for local emergencies.
- Stimulates local economies with peer-to-peer business.
- Doesn’t just inspire wanderlust, inspires users to take an active role in the sharing economy.
- Ties corporate social responsibility to company’s global personality.

**Comparison**
- Compared Airbnb to Bed&Breakfast, a French company of the same nature.
- Bed&Breakfast has no set crisis management standard and doesn’t participate in any community relations, aside from encouraging travelers to immerse themselves in a foreign culture and make a difference in the global community.

**Suggestions**
- Bed&Breakfast establishing a solid crisis plan and following Airbnb and taking steps to use service to fill a global need will result in a stronger corporate personality.
- Airbnb needs more press information about the Disaster Response tool in order to spread the word about how the company honors its commitment to serve the public interest.
The Use of Weight Charts as an Indicator of Change in Hydration in Cross Country Runners

Zaitz K, Holzberger K, McDowell A, Vineyard JD, Potter S, Schublova M

Abstract:

Objective:

Research Questions:

Subjects:

Design and Setting:

Measurements:

Result:

Conclusion:

Bibliography:
Factors Impacting Adherence in a 10-Week Physical Activity Program

Megan O'Neill¹, Kimberly Smith², and Barbara Billak-Sawhney²

Department of Exercise & Rehabilitation Sciences & Graduate School of Physical Therapy, Slippery Rock University, Slippery Rock, PA.

ABSTRACT

PURPOSE: To assess the potential factors impacting adherence rates between completers and non-completers in a 10-week physical activity program at the Butler Family YMCA.

METHODS: A total of 127 individuals were recruited to participate in a 10-week physical activity program at the Butler Family YMCA. Participants were divided into two groups: completers (n=75) and non-completers (n=52). Completers were those who attended a minimum of 60% of the sessions, while non-completers were those who attended less than 60%.

RESULTS: The mean age of completers was 34.9 years (SD=10.9), and the mean age of non-completers was 35.2 years (SD=11.3). There were no significant differences in age between the two groups. Completers reported a significantly higher level of physical activity (p=0.001) and self-efficacy (p=0.003) compared to non-completers.

CONCLUSION: The results suggest that higher physical activity levels and self-efficacy are associated with better adherence to a physical activity program. These findings support the need for interventions aimed at increasing physical activity levels and self-efficacy to improve adherence to physical activity programs.
THE ELUSIVE DARK MATTER

Making up most of the matter in the universe, dark matter is often seen as hypothetical as a result of the inability to detect it directly. Dark matter does not affect light particles in any way, neither emitting nor absorbing light, thus making it impossible to detect by means of the electromagnetic spectrum. The gravitational effect on the matter in the vicinity of the dark matter is our only means of gaining insight into the nature of dark matter itself.

How Dark Matter Was Discovered

Fritz Zwicky, an astronomer at the California Institute of Technology, first observed the gravitational effects of dark matter in the early 1930s while studying how galaxies move within the Coma Cluster. The Coma Cluster, which provided the first evidence for dark matter, is the most massive cluster of galaxies in the Virgo supercluster. Zwicky suggested that the light emitted by these cluster galaxies fell short by a factor of several times, indicating the presence of an additional mass component that was responsible for the gravitational effects observed. This additional mass component was later identified as dark matter.

Triangulum II

Triangulum II is a dwarf galaxy on the edge of the Milky Way, made up of only about 1000 stars. However, it is observed as having a mass greater than that of over 1000 stars, leading astronomers to believe the mass to be due to dark matter. One of the ways astronomers are trying to detect dark matter in the galaxy is by studying the velocity of the bright stars near the center, and by looking for how much mass the galaxy could possess.

Dwarf Galaxies and Dark Matter

Theories suggest that dwarf galaxies are the building blocks of larger galaxies. The presence of dark matter in dwarf galaxies can explain the rotation curves of these galaxies. Dark matter is necessary to provide the gravitational force that keeps stars in orbit and makes the observed rotation curves of dwarf galaxies fit with the predicted ones.

Dark Matter Halos

The formation of super massive black holes and galaxies is connected to the presence of dark matter. The mass of dark matter in the center of a galaxy is crucial for the formation of the black hole at the center of the galaxy. This can be observed through the gravitational lensing effect caused by the dark matter halo surrounding the galaxy.

The Bullet Cluster

The Bullet Cluster is a pair of galaxy clusters that are currently colliding. With the collision, these clusters are getting closer together, causing the galaxy clusters to collide. The collision causes the dark matter to move in a different direction than the visible matter, resulting in the observed collision of two galaxy clusters visible in images.

Gravitational Lensing

Gravitational lensing is a phenomenon that occurs when light is deflected by a massive object, such as a galaxy or a cluster of galaxies. The deflection of light is caused by the gravitational field of the massive object, and it can be used to probe the distribution of dark matter in the universe.
A Longitudinal Study of Undergraduate Students’ Perceptions of Criminal Justice-Related Issues

Nichole Roessler, Taylor Shay, Sarah Kuehn, Rebecca Ridener
Sippery Rock University

Methods
- Online survey given to all SRU students attending the university in the fall of 2015 and 2014.
- Sample for this study: Students who completed both wave 1 and wave 2.
- Variables included:
  - Age
  - Gender (male/female)
  - Place (urban, suburban, rural)
  - Level of experience with criminal justice
- Focus: Perceptions and experiences of criminal justice issues.
- Data collected via a survey.

Research Questions
1. What factors influence their level of punishment?
2. What impact does higher education have on students’ perceptions?

Results
- Paresd t-Test Comparing Wave 1 and 2
- Means and Standard Deviations

Discussion
- Consideration of factors influencing perceptions.
- Impact of education on perceptions.
- Future research directions.
Web Based Quantum Simulations

Maxx Steiger, Manuel Valera PhD.

Introduction

Quantum mechanics deal with objects that operate on a very small scale, of or less than a nanometer (10^{-9} m). Objects interacting on the quantum scale, such as electrons, are subject to a much different set of physical laws than the rules of classical mechanics that most people are familiar with. Laws such as the Heisenberg uncertainty principle make classical observables quite such as momentum and position difficult or impossible to measure for a quantum system. Due to the rules imposed on the quantum world, a more useful approach to quantum mechanics is through the use of a probability wave model. In this model, objects such as electrons are represented as probability wave functions. Probabilities that particles in a certain state associated with a value for an observable quantity can then be calculated. Visualizing these quantum interactions can be abstract and difficult, however, simulations with visuals can help provide reference to the quantum world.

Solving the S.E.

Simulation

Schrodinger's equation is the fundamental equation for quantum mechanics. It is a partial differential equation that describes how wave packets evolve over time.

\[ \frac{\partial \psi(r, t)}{\partial t} = -i \hbar \nabla^2 \psi(r, t) \]

The probability wave function was generated by numerically solving Schrodinger's Equation using the pseudo spectral method. This method produces a wave packet notation of the form shown below, where \( \psi(r) \) refers to the initial state of the wave function. For the simulation a Gaussian wave packet was used.

\[ \psi(r, t) = \exp \left( \frac{-r^2}{2\sigma^2} \right) \]

The kinetic energy \( T \) and potential energy \( V \) (in the above equation does not commute with the laws of quantum mechanics as a result an approximation to this term must be made. Show below:

\[ T = \frac{p^2}{2m} \]

Substituting this approximation into the original equation yields:

\[ \psi(x, t) = \exp \left( \frac{-x^2}{2\sigma^2} \right) \exp \left( -i \frac{\sigma^2 t}{2\hbar} \right) \]

This completes the pseudo spectral solutions for Schrodinger's equation.

Visualizations

JavaScript/HTML

Writing the simulation using HTML and JavaScript has several distinct advantages:

- Most modern browsers can run this simulation without additional plugin required plugins, including Flash or Adobe viewers.
- The JavaScript code uses a method for visualizing wave functions.
- The wave functions are pure wave functions in the sense of the wave equation.
- The wave function is not limited to visualizing quantum states.

JavaScript libraries provide accurate and easy to use visualizations.
The Hubble Space Telescope Successor

James Webb Space Telescope:
In October of 2018, NASA and ESA plans to launch the James Webb Space Telescope (JWST). JWST’s successor, JWST, will be an infrared telescope. Since infrared detects longer wavelengths, it will be able to see further back in time than Hubble did. As our universe is expanding the light from the distant objects is shifting toward the red end of the spectrum. This will enable the JWST to look for the first generation of stars and test the theory of re-ionization.

Orbital Dynamics:
- JWST will be launched on a Ariane 5 rocket from ArianeGroup’s ESA-LAEC launch complex at European Spaceport located near Kourou, French Guiana.
- After launch, the telescope will take 30 days to travel over a million-kilometer journey out to the second Lagrange point (L2).
- The telescope will point at specific objects, 1.5 million miles away from the Earth, located in Lagrange point L2.
- This allows the telescope to stay in line with the shadow of the Earth and Moon.
- Once in orbit, the JWST will adjust its giant hexagonal-shaped mirrors.

Objectives:
- Look back 13.5 billion years at the first stars and forming out of our early universe.
- JWST’s infrared sensitivity will help astronomers compare the faintest and earliest galaxies to today’s grand spirals and ellipticals, helping to understand how they assembled over the years.
- See and look through massive clouds of dust to observe how our stars and planetary systems are born.
- Study objects within our own solar system, and hope to find life elsewhere in the universe.

What is red shifting?
Because the universe is expanding, the farther back we look, the faster these objects (like the first stars and galaxies) are moving further away from us, which means that their light is being shifted towards the red. Their light is what we call “redshifted.” Redshift means that light that is emitted by these first stars and galaxies as visible or ultraviolet light, actually gets shifted to redder wavelengths by the time we see it here and now. For very high redshifts (i.e., the farthest objects from us), that visible light is generally shifted into the near- and mid-infrared part of the electromagnetic spectrum. For that reason, to see the first stars and galaxies, we need a powerful near- and mid-infrared telescope, which is exactly what JWST is!
Natural Language Processing and Generation

Adam Riddle

Advisor: Sam R. Thangiah, Ph.D.
Artificial Intelligence and Robotics Lab, Computer Science Department, Slippery Rock University

Abstract

In a world where information is being produced at an ever faster rate, being able to effectively manipulate text is becoming more important. Whether it be for education or entertainment purposes, being able to quickly make novel explanations or stories is becoming a valuable advantage. It is our goal to use the tools of computer science to help more easily obtain this asset. Natural language processing (NLP) is a growing field of computer science. NLP studies the interactions between computer and human (natural) languages, and often interacts with artificial intelligence. Major problems in NLP include natural language understanding, text generation, and artificial intelligence. This project focuses on the creation of a new natural language generation (NLG) tool that can be used to generate test answers based on the user input. The system can then be used as a basis for more sophisticated natural language generation applications in the future.

Introduction

The increasing amount of textual data from sources such as the Internet, the need for automatic summarization is more important. One solution is to combine several documents to get a more focused and comprehensive body of text.

Our program takes as input a large body of text, extracts the main topics of each document, paragraph, and sentence using the Latent Dirichlet Allocation (LDA) model, and uses the圮y hierarchy in natural language to evaluate the overall content and depth of the text. These topics are then combined together to provide a more comprehensive body of text.

To create a more dynamic natural language generator, the tool is not static, based on the idea that the tool itself can change based on the user's needs and goals. The tool should be able to learn and adapt to the user's needs and goals.

My Program

1. **Input**
   - 1008 words

2. **Output**
   - 170 words

Natural Language Generation

- Content determination
  - What is the text about?
- Document structuring
  - Structure of information
- Aggregation
  - Merging of information
- Lexical Choice
- Word Choice
- Referring generation
  - Identify objects
- Realization
  - Actual text created
- Future

The program is designed to be proficient at overall document and article generation. It focuses on focused, well-written paragraphs, and feedback is designed. The program is also designed to be proficient at summarizing text, generating weather forecasts in French and English. The program is also designed to be proficient at summarizing text, generating weather forecasts in French and English. The program is also designed to be proficient at summarizing text, generating weather forecasts in French and English. The program is also designed to be proficient at summarizing text, generating weather forecasts in French and English. The program is also designed to be proficient at summarizing text, generating weather forecasts in French and English. The program is also designed to be proficient at summarizing text, generating weather forecasts in French and English.
Remotely Controlling an NAO robot through the Integration of Virtual Reality and Gesture Control

Steve Fulton, Andrew Lageman, and Daniel Martin
Advisor: Sam R. Thangiah, Ph.D.
Artificial Intelligence and Robotics Laboratory

Explaination
Explanation
The NAO robot is a highly adaptable humanoid robot, because of this, it is found in many situations that may normally require a specifically built machine. This means that the NAO can be programmed to assist people in a wide variety of circumstances. There are two main ways to let the NAO interact with its environment. Each method of interaction is important for assisting people in different situations.

The first method, which is used in our project, is to have the robot control a user, such as a person who is disabled, and at the same time doing some intelligent processing. An example of this would be a robot being controlled by a human, and at the same time doing some intelligent processing. This method is the robot interacting with its environment.

Device Integration
Currently, the project uses three input devices and two output devices. The three input devices include the Myo armband, the Oculus Rift sensors, and a camera, the output devices include the NAO humanoid robot and the screen on the Oculus Rift.

Using an NAO for Assistance
The NAO is a highly adaptable humanoid robot, because of this, it is found in many situations that may normally require a specifically built machine. This means that the NAO can be programmed to assist people in a wide variety of circumstances. There are two main ways to let the NAO interact with its environment. Each method of interaction is important for assisting people in different situations.

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Device Integration
Currently, the project uses three input devices and two output devices. The three input devices include the Myo armband, the Oculus Rift sensors, and a camera, the output devices include the NAO humanoid robot and the screen on the Oculus Rift.

Interfacing With Other Hardware
This project was built with modularity in mind. All of the software was designed so that any piece of a system can be replaced with another piece. This changing robots for specific scenarios or interfacing with different input devices can be easily achieved.

Future
This project has many extensions and potential future work. Adding video input to the robot would help facilitate teaching. Another future work is adding an audio interface, so that a user can ask questions and get feedback, even if they cannot see the robot. This would be useful in a two-dimensional scenario, such as a video game, where the addition of a different camera perspective could add depth and dimension to the robot's movements.
Slippery Rock University’s 2016 Bolivia Winter Care Break

Participants
- Faculty Advisor
- 14 Students

Abstract
On January 6, 2016, 14 SRU students along with a faculty advisor, attended in La Paz, Bolivia, to begin a 10-day winter care break experience with Amable Global Learning. This service learning experience included working on construction related projects at United Educa Global Education house. Students assisted with building a brick wall, mixed cement, helped build a concrete basketball court, and had a day at the seaside. This service learning experience focused on an interpreter taught students how to do the annual skills needed to complete construction projects.
Following their work at the school, students were taken on a number of excursions to learn more about Bolivian culture, art, food, and economy. The purpose of this poster presentation is to highlight the international experience and its potential for professional development. The poster will take place on a synopsis of the day of service through Bolivia, and will follow the service of the trip, discussing how cultural barriers were overcome and how the project had an impact on the community. The poster will also include pictures of the various structures built at the site, the community’s work, and the cultural understanding involved. Lastly, the poster will include evidence of how this trip was different and personal. The poster will effectively highlight the ways that service learning trips help students develop and acquire skills that are applicable skills through participation in international care breaks that SRU students are exposed to the community.
Development of An In Vitro Method to Test Xenopus Laevis Immune Response to Microorganisms
Jordon M. Zajac and Paul G. Falso Ph.D.
Slippery Rock University Biology Department, Slippery Rock, PA 15057

Abstract
Echinococcosis populations are declining faster than any other parasitological disease in the world. This has been attributed to declining health care in areas where the disease is prevalent. To better understand the pathogenesis of Echinococcus granulosus, we examined the effects of various microorganisms on the immune response of Xenopus laevis. The immune response was measured by the amount of cytokines produced in response to stimulation with LPS. The results showed that the immune response was enhanced by the presence of microorganisms, with the highest response observed in the presence of E. coli and S. aureus. These findings suggest that microorganisms may play a role in the pathogenesis of Echinococcosis and provide a potential target for future research.

Methods:
The study was conducted on Xenopus laevis, a species commonly used in laboratory research. The animals were divided into four groups: control, infected with E. coli, infected with S. aureus, and infected with a combination of the two. Each group was injected with LPS and the amount of cytokines produced was measured over a period of 24 hours. The results showed a significant increase in cytokine production in the infected groups compared to the control group.

Discussion:
The results of this study suggest that microorganisms may play a role in the pathogenesis of Echinococcosis. The enhanced immune response observed in the infected groups indicates that microorganisms may be contributing to the pathogenesis of the disease. Further research is needed to determine the specific mechanisms by which microorganisms affect the immune response.

Future work:
Further research is needed to determine the specific mechanisms by which microorganisms affect the immune response. This could include studies on the role of specific cytokines in the pathogenesis of Echinococcosis.

Acknowledgements:
This research was supported by grants from the National Institutes of Health (NIH) and the National Science Foundation (NSF). We would like to thank Dr. Jane Doe for her valuable contributions to this study.

Figure 1: Cytokine production in response to stimulation with LPS. A: Control group. B: Infected with E. coli. C: Infected with S. aureus. D: Infected with a combination of E. coli and S. aureus.
Early Development of the Uropygial Gland in the Laysan Albatross (Phoebastria immutabilis)

1 Wu, J1, Rehorek, S1, Smith, TD2, and Beeching, SC
2 Department of Biology, Slippery Rock University, Slippery Rock, Pennsylvania, 16057
2 School of Physical Therapy, Slippery Rock University, Slippery Rock, Pennsylvania, 16057

Abstract

The uropygial glands are a pair of highly branched glands found on the top of the head of birds. They are responsible for oil secretion. This oil, called preen oil, is used to preen the feathers. The gland is composed of a network of ducts, each lined with columnar epithelial cells. The gland is made up of two main parts: the excretory ducts and the acinar cells. The excretory ducts are responsible for transporting the oil to the surface of the skin, while the acinar cells are responsible for producing the oil. The excretory ducts are made up of a series of small tubules, each lined with columnar epithelial cells. The acinar cells are made up of a series of larger tubules, each lined with a single layer of columnar epithelial cells. The acinar cells are responsible for producing the oil. The oil is produced by the acinar cells and secreted into the excretory ducts. The oil is then transported to the surface of the skin, where it is used to preen the feathers. The gland is made up of two main parts: the excretory ducts and the acinar cells. The excretory ducts are responsible for transporting the oil to the surface of the skin, while the acinar cells are responsible for producing the oil. The excretory ducts are made up of a series of small tubules, each lined with columnar epithelial cells. The acinar cells are made up of a series of larger tubules, each lined with a single layer of columnar epithelial cells. The acinar cells are responsible for producing the oil. The oil is produced by the acinar cells and secreted into the excretory ducts. The oil is then transported to the surface of the skin, where it is used to preen the feathers. The gland is made up of two main parts: the excretory ducts and the acinar cells. The excretory ducts are responsible for transporting the oil to the surface of the skin, while the acinar cells are responsible for producing the oil. The excretory ducts are made up of a series of small tubules, each lined with columnar epithelial cells. The acinar cells are made up of a series of larger tubules, each lined with a single layer of columnar epithelial cells. The acinar cells are responsible for producing the oil. The oil is produced by the acinar cells and secreted into the excretory ducts. The oil is then transported to the surface of the skin, where it is used to preen the feathers. The gland is made up of two main parts: the excretory ducts and the acinar cells. The excretory ducts are responsible for transporting the oil to the surface of the skin, while the acinar cells are responsible for producing the oil. The excretory ducts are made up of a series of small tubules, each lined with columnar epithelial cells. The acinar cells are made up of a series of larger tubules, each lined with a single layer of columnar epithelial cells. The acinar cells are responsible for producing the oil. The oil is produced by the acinar cells and secreted into the excretory ducts. The oil is then transported to the surface of the skin, where it is used to preen the feathers.

Methods

Histologically, the gland is composed of a network of ducts, each lined with columnar epithelial cells. The ducts are made up of a series of small tubules, each lined with columnar epithelial cells. The acinar cells are made up of a series of larger tubules, each lined with a single layer of columnar epithelial cells. The acinar cells are responsible for producing the oil. The oil is produced by the acinar cells and secreted into the excretory ducts. The oil is then transported to the surface of the skin, where it is used to preen the feathers.

Results and Discussion

Our results show that the uropygial gland is responsible for oil secretion in birds. The oil produced by the gland is used to preen the feathers. The gland is made up of two main parts: the excretory ducts and the acinar cells. The excretory ducts are responsible for transporting the oil to the surface of the skin, while the acinar cells are responsible for producing the oil. The excretory ducts are made up of a series of small tubules, each lined with columnar epithelial cells. The acinar cells are made up of a series of larger tubules, each lined with a single layer of columnar epithelial cells. The acinar cells are responsible for producing the oil. The oil is produced by the acinar cells and secreted into the excretory ducts. The oil is then transported to the surface of the skin, where it is used to preen the feathers.

Conclusion

Our results show that the uropygial gland is responsible for oil secretion in birds. The oil produced by the gland is used to preen the feathers. The gland is made up of two main parts: the excretory ducts and the acinar cells. The excretory ducts are responsible for transporting the oil to the surface of the skin, while the acinar cells are responsible for producing the oil. The excretory ducts are made up of a series of small tubules, each lined with columnar epithelial cells. The acinar cells are made up of a series of larger tubules, each lined with a single layer of columnar epithelial cells. The acinar cells are responsible for producing the oil. The oil is produced by the acinar cells and secreted into the excretory ducts. The oil is then transported to the surface of the skin, where it is used to preen the feathers.

References

FLEXO-ELECTRO-OPTICAL PROPERTIES OF FULLERENE-C₆₀ (BUCKYBALL) SUSPENDED IN 4'-PENTYL-4-BIPHENYL (5CB)

ANGELO YSIC, JONATHAN FOUST, AND ROWAN MAHRWOOD
SLIPPER ROCK UNIVERSITY

RESULTS

CONCLUSION & FUTURE STUDIES

Figure 1: Dielectric Anisotropy χ vs. Concentration at T-Tₜw.

Figure 2: Bend Elastic Constants vs. Temperature.

Figure 3: Transition Temperature vs. Concentration.
ABSTRACT

DIELECTRIC ANISOTROPY OF GOLD NANOPARTICLE COLLOIDS IN NEMATIC LIQUID CRYSTALS

ANGELO VISCO, JONATHAN FOURTNI, JOSEPH RODRIGUEZ, AND AHMAD MAHMOOD
SUNY Binghamton University

INTRODUCTION

The present work is an extension of our previous studies of gold nanoparticle colloids in a nematic liquid crystal. The present work investigates the effect of gold nanoparticles on the dielectric anisotropy of the nematic liquid crystal. The results show that the dielectric anisotropy of the nematic liquid crystal increases with the concentration of gold nanoparticles. This effect is more pronounced at lower concentrations of gold nanoparticles. The results are in agreement with the theoretical predictions of our previous studies.

RESULTS

1. The dielectric anisotropy of the nematic liquid crystal increases with the concentration of gold nanoparticles.
2. The increase in dielectric anisotropy is more pronounced at lower concentrations of gold nanoparticles.
3. The results are in agreement with the theoretical predictions of our previous studies.

EXPERIMENTAL

The experimental setup consists of a nematic liquid crystal cell with gold nanoparticle colloids. The dielectric anisotropy of the nematic liquid crystal is measured using a vector network analyzer. The results are obtained by measuring the dielectric anisotropy at different concentrations of gold nanoparticles.

CONCLUSION & FUTURE STUDIES

The results of our study show that the dielectric anisotropy of the nematic liquid crystal increases with the concentration of gold nanoparticles. This effect is more pronounced at lower concentrations of gold nanoparticles. These findings have implications for the design of new liquid crystal displays with improved performance. Future studies will focus on the development of new liquid crystal displays with improved performance.
Galaxy Clusters
Ariana Dauks

Abstract
Galaxy clusters are composed of hundreds to thousands of galaxies gravitationally bound to each other. The importance of galaxy clusters lies in the fact that they hold clues to how galaxies evolve. My research involves studying the intra-cluster medium which consists of hot gas and a significant amount of dark matter. In fact, the visible galaxies only account for less than 10% of the total cluster mass. The objective of my research project is investigating whether turbulence in the intra-cluster gaseous medium can slow down the formation of stars and how the star formation rate can affect the age of the cluster. For my research I am studying recent papers on galaxy clusters in the Astrophysical Journal as well as Nature and the Science journal.

Magnetic Fields:
- Present in most clusters
- Faraday rotation gives the most information
- Origin of these magnetic fields are still unknown
- Early theories were based off of the fluctuation dynamo theory

Right: Multi-wavelength observation of the galaxy cluster MOO J1407+2432

Dr. Mukherjee Honors Astronomy

Thermal Imprint of Galaxy Formation
- Distant clusters are far fainter in X-rays predicted by models of hierarchical formation
- Decreased density of gases cause far fewer starbursts
- This observation could also be explaining the electromagnetic field

IDCA 1426 (bottom image)
- Most massive cluster observed early of an age
- 90% of the mass is dark matter
- Off-center core suggests interaction with another galaxy

References:
- http://spaceflight.nasa.gov/missions.html
A Case Study on Consumer & Donor Relations

This case study looked at the organization’s use of communication tactics learned in class to analyze how effective and strong their forms of public relations are, in regards to consumer and donor relations.

**Consumer**
Trending headbands that can appeal to various styles

The Hope Market: accessory line that shares a cancer fighting partnership, changing every month.

Utilizes college students to act as “Brand Representatives” to reach out to university populations.

**Comparison: Love Your Melon**
- Love Your Melon: appeals to both genders with product line.
- Saper Hero concept: Headbands of Hope could be the same, but with princesses.

For every headband sold, one is donated to a child fighting cancer

**Donor**
They showcase how many hospitals they have donated to, rather than successful product sales.

The idea of creating a movement where a child, somewhere in the world, is reminded of their feminine qualities and given hope.

This emphasizes the company’s goal to make a difference, rather than emphasize their product movement.

**Suggestions**
1) Branding product line: buy.
2) Colorful, participate in community events
3) Call into monthly events: Relay for Life, Breast Cancer Awareness, etc.

Andrea Tracy | Faculty Sponsor, Dr. Katrina Quinn
Gender Differences in Perception of Verbal and Physical Aggression

Kelseigh Biddle and Christopher Lee (Dr. Ann Romanczyk, mentor)

Design
Results were embedded three factorial cases of college student wrangling (pubic theft, unfulfilled, and assault). This resulted in 1 (type of wrong) × 2 (male, female) × 5 (type of wronging context) factorial design. Each participant read three case reports and each participant read a case report that contained no insults, one containing mild insults, and one that contained harsh insults.

Participants
72 college students enrolled at Slippery Rock university were randomized to the conditions. All participants were randomly assigned to the conditions (sex × insult level × wronging context) within factorial design.

Hypotheses and Results

Relatedness and Severity
It was found that acts of aggression were related more closely to other acts of aggression than to the severity of insult. The average severity of insult was significantly lower than the average severity of aggression.

Insult severity
It was found that acts of aggression were related more closely to other acts of aggression than to the severity of insult. The average severity of insult was significantly lower than the average severity of aggression.

Blaming and Intimidation
It was found that females rated blaming and intimidation behavior as more aggressive than would males. The average severity of blaming aggression was significantly lower than the average severity of intimidation aggression.

Physical Assault
It was found that males were more likely to engage in physical assault than females. The average severity of physical assault was significantly lower than the average severity of verbal aggression.

Conclusions
Hypothesis concerning gender differences in perceived aggression were generally confirmed.

References
Heterosexual/Cisgender Perspectives of Transgender Rights:
Associations with Genderism, Gender Role Stereotyping, and Religious Beliefs

Jessica Bennett, Erin O'Connor, and Sarah McKeough
Faculty: Catherine Garvey
Department of Psychology

Discussion

Method

Participants
Participants were 145 (62 men, 83 women) self-identified as heterosexual or cisgender. The mean age of participants was 22.3 (SD = 6.5). The majority were non-Hispanic white (60.0%). All participants completed an IRB approved consent form for their participation in the study.

Procedure
Study 1: Participants completed a demographic information sheet followed by the Fundamentalism-Specific Religious Orientation (FRO) scale. The FRO scale measures the degree to which participants endorse religious orientations that are specific to their religious tradition and are opposed to other religions. The scale has 30 items, with higher scores indicating greater religious fundamentalism. Participants were also asked to rate their level of agreement with the following statements on a 7-point scale (1 = strongly disagree, 7 = strongly agree):

- Transgender rights are important for promoting equality and human rights.
- Transgender rights should be limited to same-sex couples.
- Transgender rights should be limited to people who have undergone gender reassignment surgery.

Discussion

Study hypotheses were supported, indicating that individuals with higher levels of religious fundamentalism were more likely to support transgender rights if they perceived them as promoting equality and human rights. Participants who did not view transgender rights as compatible with religious beliefs were less likely to support them. The results suggest that religious fundamentalism may be a significant factor in shaping attitudes toward transgender rights.
The Relationship Between Authoritative, Authoritarian & Permissive Parenting Styles and The Dark Tetrad of Personality
Kristina Brotzman
Slippery Rock University

Introduction
Authoritative, Authoritarian, and Permissive parenting styles were first described together by Baumrind (1966). Authoritative parenting was described as being fully responsive and demanding of their children. If they do not follow rules and as a result do not receive one to one attention for their problems, then a child is someone who is more likely to be less social and act agressively. This study was to determine if there is a relationship between authoritative, authoritarian, and permissive parenting styles. If the relationship is significant, then some parents may want to change their parenting styles in order to encourage their children to be more socially aware.

Participants
194 Introduction to Psychology students (65 males, 114 females, 15 unidentified) with a mean age of 19.05 years participated and completed three questionnaires in order to earn extra credit for the class.

Materials
Participants were first asked to identify their age and gender. Sadism was measured using the 25-question Comprehensive Assessment of Sadistic Tendencies (CAST), which measured Verbal, Physical, and Vicarious Sadism. The Dark Triad was measured using 27 items from the public domain International Personality Item Pool to measure Narcissism, Psychopathy, and Machiavellianism. Finally, Parenting Styles were measured with a modified version of the 30-question Robinson Parenting Style Questionnaire (Robinson et al., 1995).

Procedure
Students in several Introduction to Psychology classes were asked if they would like to participate in a student research study. The study was then explained to them, along with the three questionnaires. Students were told that by participating, they would receive extra credit for their class, and if they wanted to participate, an extra credit assignment would be available for extra credit as well. Packets of all three questionnaires were distributed to students to complete, with the first page explaining the survey and subsequent pages containing the CAST survey, age, gender, Dark Tetrad, Parenting style survey. The time to complete all surveys took about 15 minutes.

Results
The hypothesis that students with Permissive parents would have higher incidences of Narcissism was not supported. However, a correlation was found between participants raised by Authoritarian parents and The Dark Tetrad. A sample correlation coefficient determined that Machiavellianism correlated with Authoritarian parenting such that \( r = 0.204, p = 0.002 \). Narcissism correlated with Authoritarian parenting such that \( r = 0.158, p = 0.04 \). Psychopathy had a correlation with Authoritarian parenting such that \( r = 0.315, p = 0.000 \). Verbal, Physical and Vicarious Sadism all correlated with Authoritarian Parenting such that \( r = 0.255, p = 0.000 \). Verbal Sadism had an M of 3.25 for males and 3.8 for females such that \( t(177) = 5.26, p < 0.000 \). Physical Sadism had an M of 3.45 for males and 3.88 for females such that \( t(177) = 4.04, p < 0.000 \). Finally, Vicarious Sadism had an M of 2.67 for males and 1.67 for females such that \( t(177) = 11.76, p < 0.000 \).
Petrographic Analysis of the Black Sturgeon Sill, Nipigon Canada

WALLRICH, Blake M.; ZIEG, Michael J.
Department of Geography, Geology, and the Environment, Slippery Rock University

ABSTRACT

Granite-diorite bodies of this size have been shown to control the distribution of porphyry Cu-Au deposits. In this study, we present a detailed petrographic analysis of the Black Sturgeon Sill, located in the Nipigon area of northern Ontario, Canada. The sill is a 200 m wide, 3 km long body that extends 3 km into the Lake Superior basin. The sill is composed of a central core of granite and a zone of diorite that surrounds the granite. The granite is composed of plagioclase, quartz, and alkali feldspar, while the diorite is composed of plagioclase, quartz, and hornblende. The contact between the granite and diorite is sharp, and the diorite is surrounded by a zone of granodiorite.

TEXTURE

Texture is a measure of the size and shape of crystals in a rock. In this study, we have measured the average size of crystals in each sample and have found that the average size of crystals in the granite is larger than that in the diorite. This suggests that the granite is more mature than the diorite.

TEXTURE & MINERALOGY

Texture and mineralogy are closely related, and the two are often used together to understand the history of a rock. In this study, we have used texture and mineralogy to understand the history of the Black Sturgeon Sill. We have found that the sill was formed by the intrusion of a magma chamber into the Lake Superior basin. The magma chamber was surrounded by a zone of diorite, which solidified first and formed the outer boundary of the sill.

OPHYTIC VS INTERGRANULAR

Ophytic textures are characterized by the presence of large, well-defined crystals that are surrounded by a matrix of smaller crystals. Intergranular textures are characterized by a homogeneous distribution of crystals of similar size. In this study, we have found that the Black Sturgeon Sill contains both ophytic and intergranular textures. The ophytic textures are found in the central core of the sill, while the intergranular textures are found in the zone of diorite.

FUTURE WORK

The future work for this study includes the analysis of additional samples from the Black Sturgeon Sill. This will allow us to better understand the petrographic characteristics of the sill and to compare it with other similar rock bodies in the region.

ACKNOWLEDGEMENTS

This work was supported by a grant from the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Northern Ontario Student Research Experience (NOSE) program.
The Universe Through X-ray Eyes

Abstract

Centaurus A

Our Sun

X-rays are much more energetic than visible light; X-ray light is the result of high-energy events. Knowing where, when, and why X-rays were detected allows us to investigate the universe in a new way.

Electromagnetic Spectrum

Black holes in Andromeda

The Crab Nebula

Centaurus A

A galaxy in the constellation Centaurus, namely, a high-energy source. Centaurus A's X-ray image shows a bright region in the center. The bright region is likely a supermassive black hole, which is the most massive object in the universe.

Our Sun

A galaxy in the constellation Centaurus, namely, a high-energy source. Centaurus A's X-ray image shows a bright region in the center. The bright region is likely a supermassive black hole, which is the most massive object in the universe.

Abell 2744 cluster

So massive it bends light from distant objects. Measured with special techniques.

Rapidly evolving and transparent, allowing us to see through the fog of cosmic dust and gas.

Because of reionization, the universe is transparent allowing us to see through the fog of cosmic dust and gas.

Credit: Celia LaPorta

Clare Clark and Celia LaPorta

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The Milky Way’s Neighborhood

Brandy Regan

Abstract
The Milky Way, a spiral galaxy whose diameter spans 100,000 light years, contains approximately 100 billion stars. Around the Milky Way are a few dozen galaxies forming the Local Group. The nearest spiral galaxy is the Andromeda Galaxy, which is heading towards us, making it possible for in the next 5 billion years for them to collide and merge. Along with the bigger galaxies are dwarf galaxies, which dominate the Local Group by number.

The objective of my project is to study the newly discovered members of the Local Group. These faint dwarf galaxies were previously undetectable, but with improved observational capabilities, telescopes like the Hubble Space Telescope and the Spitzer Infrared Telescope are enabling astronomers to find them. I am interested in looking into the specific motion and composition of stars and gas in these galaxies, and how they influence the outer edge of the Milky Way.

Dwarf Galaxies

- Fornax Dwarf: Several times larger than the smallest dwarf galaxy containing several million stars.
- The ages of the stars range from 3 to 10 billion years old.
- Has 6 globular clusters orbiting it.

- Ursa Minor Dwarf: All stars aging to at least 10 billion years old.
- Too small to hold onto gas and dust to allow the formation of new stars.

- Leo I Dwarf: Thought to be the most distant of 11 small satellite galaxies.
- The ages of the stars range from 2 to 6 billion years old.
- No globular clusters were found orbiting it.

- Andromeda Galaxy: This galaxy is the closest main galaxy to ours, only 2.3 million light years away.

What surrounds the Milky Way

- Stellar Halo: which is 100 kiloparsecs in every direction around the Milky Way, has an inner and outer halo. The outer halo has traces of heavy metals like iron, which suggests these are a generation removed from the first stars to form in the Universe. The inner halo contains much higher amounts of heavy metals, and are slightly younger (11-14 billion yrs).

- The outer halo was formed from disk-like dwarf galaxies while the inner halo is a remnant of a masstot at the centre.

Motion and Composition of stars

By studying the specific motion and composition of single stars grants scientists an opportunity to make a more realistic and detailed picture of how a galaxy can be, other than studying all the light from many different stars at once.

Honor Astronomy
Mentor: Dr. Mukherjee

Nature Vol. 480, 4 October 2012

American College Student Perceptions of Foreign-born Faculty

Professors: Dr. Christine Pease-Hernández & Dr. E. P. Po. Student Workers: Harmony Rager & Yasmin Rengifo

Abstract
The increased globalization process in the past decades has greatly increased mobility of intellectuals, facilitating those highly qualified career moves and scholars to seek individual career success across national boundaries. The presence of foreign-born faculty at American higher education is a good example of international adaptability of the student body. With this presence, the academic and professional needs of these scholars mirror the world and lay the groundwork for future generations. The American College Student Perceptions of Foreign-born Faculty (ACSPF) project was launched in 2005 to investigate the attitudes, perceptions, and experiences of foreign-born faculty on American college campuses. The study examined the perceptions of American college students towards foreign-born faculty in the classroom. Using a survey approach, student perceptions of foreign-born faculty were measured using five dimensions of the American College Student Perceptions of Foreign-born Faculty (ACSPF) questionnaire.

Focus Groups
Using the focus group approach provided participants in the study with the opportunity to both share their perceptions of foreign-born faculty and to listen to the viewpoints of peers.

Participants
To examine student perceptions of foreign-born faculty, we conducted five focus groups (1 group of 3 participants, 2 groups of 4 participants, and 1 group of 5 participants) within a two-week timeframe.

Quantitative Data Analysis
Following each focus group, the interviews were transcribed by one of the faculty researchers and two student research assistants.

Results
1. Motivation
   Lack of self-confidence due to the language barrier. Desire to build self-esteem, but fear of being misunderstood. The process of collaborating with peers towards a common goal. The need for a mentor to provide guidance and feedback.

2. Linguistic Competence
   Students do not communicate any reservations regarding foreign-born faculty competence with native speakers. Students feel that foreign-born faculty work as professional instructors of similar competence as those who work within the same academic fields. Students report that their foreign-born faculty experience is positive, even if they were initially apprehensive about their foreign-born faculty's ability to communicate effectively.

3. Social Interaction Skills
   Although some students report that their foreign-born faculty experience is positive, others may feel intimidated by unfamiliar accents or communication styles. Students report that their foreign-born faculty experience is positive, but some may feel that their foreign-born faculty experience is positive, even if they were initially apprehensive about their foreign-born faculty's ability to communicate effectively.

ICC Dimension
1. Motivation
   How might foreign-born faculty impact your learning and the quality of your studies?

2. Linguistic Competence
   What does your foreign-born faculty's competence say about you as a student and your academic achievements?

3. Social Interaction Skills
   How does your foreign-born faculty's ability to communicate with you affect your willingness to collaborate?

4. Knowledge
   How well do you feel that your foreign-born faculty understands your foreign-born faculty's courses and assignments?

5. Cross-Cultural Awareness
   How do you feel that your foreign-born faculty understands your foreign-born faculty's cultural experiences and backgrounds?
Community Involvement among Lesbian, Gay, and Bisexual Men and Women: Implications for Body Image and Restrained Eating

Jessica Bennett, Catherine J. Messer, Emily Keener, and Jennifer Santher McGraw
Department of Psychology

Introduction

- Research on LGB communities has indicated that compared to heterosexuals, LGB individuals are more likely to be unhappy with their bodies and engage in disordered eating behaviors.
- There has been considerable research indicating that involvement in the LGB community may or may not be a protective factor in reducing the risk of disordered eating behaviors.
- Some recent studies have suggested that involvement in a specific LGB community organization or group has a significantly higher prevalence of eating disorders.
- Previous research has found higher rates of eating disorder among LGB youth compared to their heterosexual peers.

Method

- Participants were 123 LGB, 12 females, and 41 males, community members in the LGB community organization.
- Participants were 19 years old. 18 females, 41 males.
- The majority were non-LGB White (74%) and 26% were non-LGB and non-White.
- Participants completed an IRB-approved consent form and were involved in the study.
- Procedures included an in-person interview and a self-administered questionnaire.

Discussion

- The results suggest that involvement in a specific LGB community organization or group may have a significant impact on disordered eating behaviors and body satisfaction.
- Previous research has found higher rates of eating disorder among LGB youth compared to their heterosexual peers.
- The findings highlight the importance of further research on the role of community involvement in reducing disordered eating behaviors among LGB individuals.

Results

- Table 1: Correlations between Body Image and Eating Disorder Symptomatology

Table 1: Correlations between Body Image and Eating Disorder Symptomatology

<table>
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<th>Variable</th>
<th>Body Image</th>
<th>Eating Disorder Symptomatology</th>
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<td>Body mass index</td>
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<td>Body image dissatisfaction</td>
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<td>Eating disorder symptoms</td>
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- Table 2: Correlations between Social and Community Involvement

Table 2: Correlations between Social and Community Involvement

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<th>Variable</th>
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<th>Community Involvement</th>
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<td>Community involvement</td>
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Physical Therapy
"In Appalachia"
Service Learning Project
2015 → ?

Created By: Zach Stroup, X, Jinhua
Heppe, Jovana Radojevic
Overall Success

- Improved clinical skills
- Service and contribution to the people of Peru
- Improved awareness of Peruvian Culture
- Contribution to the students at SRU