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Conference

2011, 22nd Annual JWP Conference

Apr 9th, 8:00 AM - 4:00 AM

Complete 2011 Program

John Wesley Powell Conference
Illinois Wesleyan University

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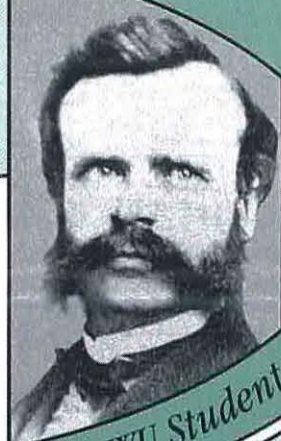
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THE TWENTY-SECOND ANNUAL

Illinois Wesleyan University
John Wesley Powell

2011

STUDENT
RESEARCH CONFERENCE



To Recognize the Research Projects & Creative Endeavors of IWU Students

The conference is named for explorer and geologist John Wesley Powell, a one-armed Civil War veteran and a founder of the National Geographic Society who joined Illinois Wesleyan University's faculty in 1865. He was the first U.S. professor to use field work to teach science. In 1867 Powell took Illinois Wesleyan students to Colorado's mountains, the first expedition of its kind in the history of American higher education. Later, Powell was the first director of the Smithsonian Institution's Bureau of Ethnology.



Illinois Wesleyan
UNIVERSITY

CENTER FOR
NATURAL SCIENCES

SATURDAY

APRIL 9, 2011

<http://www.iwu.edu/jwprc>

Twenty-Second Annual

John Wesley Powell • IWU

Student Research Conference

Center for Natural Sciences and Ames Library

Saturday, April 9, 2011

8:30 a.m. – 4:00 p.m.

Official Program

ACKNOWLEDGEMENTS

The John Wesley Powell Research Conference Committee would like to acknowledge the contributions of several individuals.

This conference could not have been a success without the contributions of Pat Neustel, Associate Provost's Office, in organizing many aspects of the conference and assembling and printing the program booklet.

The invaluable assistance provided by Mike Welsh and his staff at Sodexo Campus Services in setting up breakfast, luncheon and other refreshments is gratefully acknowledged.

The assistance provided by Patrick McLane of Information Technology in setting up computer equipment in all rooms is greatly appreciated.

John Wesley Powell Research Conference Committee:

- David Vayo (Music)
- Melinda Baur (Chemistry)
- Amit Ghosh (Economics)
- Jeungbo Shim (Business Administration)
- Joanne Diaz (English)

SCHEDULE OF EVENTS

Saturday, April 9, 2011

8:30 a.m.	Continental Breakfast and Poster Setup	Science Commons and Ames Library
9:00 a.m.	Poster Session A	Science Commons
	Educational Studies Posters	Ames Library
10:00 a.m.	Oral Presentations – <i>Session One</i> Sessions 1 through 6	CNS
11:00 a.m.	Oral Presentations – <i>Session Two</i> Sessions 7 through 13	CNS
11:00 a.m.	Music Student Composition Performance	CNS C101
12:15 p.m.	Luncheon	Main Lounge
1:30 p.m.	Keynote Address: David Dunn	Anderson Auditorium-CNS C101
2:30–3:45 p.m.	Poster Session B	Science Commons
2:30–4:00 p.m.	Senior Art Show and Critique	Merwin and Wakeley Galleries

KEYNOTE SPEAKER

“The Necessity of Double Description: The Role of an Artist in Scientific Research”

David Dunn
President, Art and Science Laboratory
Santa Fe, NM

1:15 p.m.
Anderson Auditorium (C101)

David Dunn (b.1953, San Diego) is a composer who primarily engages in site-specific interactions or research-oriented activities. Much of his current work is focused upon the development of listening strategies and technologies for environmental sound monitoring in both aesthetic and scientific contexts. Dunn is internationally known for his articulation of frameworks that combine the arts and sciences towards practical environmental activism and problem solving. From 1970 to 1974, he was an assistant to the American composer Harry Partch and remained active as a performer in the Partch ensemble for over a decade. Other mentors included composers Kenneth Gaburo and Pauline Oliveros, in addition to Polish theater director Jerzy Grotowski. He has been the recipient of over 35 grants and fellowships for both artistic and scientific research, including the National Endowment for the Arts, the Rockefeller Foundation, Langlois Foundation, McCune Foundation, Meet the Composer, Ford Foundation, Delle Foundation, Tides Foundation, New Mexico Arts Division, and the US Embassies to Argentina and Kyoto, Japan. In 2005, he received the prestigious Alpert Award for music, and the Henry Cowell Award from the American Music Center in 2007. His compositions and soundscape recordings have appeared in over 500 international forums, concerts, broadcasts, and exhibitions.

As a pioneer in the fields of acoustic ecology, bioacoustics, interspecies communication, and scientific sonification, he has composed a body of innovative and experimental musical work and has contributed to projects as diverse as sensory enhancement of healthcare environments, intervention strategies for forest and agricultural pests, reducing sensory deprivation problems in captive animals, and the design of international broadcast networks. He has investigated, among other things, the interrelationship between music and language and the ultrasonic world beyond human hearing. As an expert wildlife recordist, Dunn has invented microphones to record such phenomena as the sounds of bark beetles within trees and underwater invertebrates in freshwater ponds, and has designed self-organizing autonomous sound systems for interaction between artificial and natural non-human systems. As a scientific researcher, Dunn recently co-filed a provisional patent on a device and protocol for control of tree invading invertebrates using acoustic means. Underlying all his work is a common regard for music as a communicative source with a living world.

STUDENT PARTICIPANTS

Oral and Poster Presentations

Emily Alford	ES	Kirsten Gattuso	O10.1
Shirley Alonzo	ES	Anna Genchanok	O12.1
Walker Ambrose	O7.4	Brianna Gidday	P15
Veronica Angeles	P1	Caitlin Giudice	O9.3
Lauren Awdziejcyk	P2	Sean Gower	P16
Joanna Baffes	ES	Cindy Gregory	P17
Evan Baker	O8.1	Ronald Grider	P18
Neil Baldwin	P3	Anna Groves	P19
Aaron Ball	P5	Jack Hanlon	Music
Amy Bannon	ES	Lauren Hansen	O12.2
Cameron Barnish	ES	Kati Hinshaw	P20
Catherine Bayles	ES	Carlie Hoekstra	ES
Ashley Beadle	P4	Eleanor Holisky	ES
Hannah Becker	P6	Erin Howes	P21
Kristina Bennett	ES	Elizabeth Hudson	ES
Matthew Bockman	P7	Beth Izzo	ES
Graham Boden	O5.2	Jenna Johnson	O6.2
Chris Brackett	P8	Hannah Jones	P22
Michael Browning	O2.2	Claire Karlen	P23
Alan Brus	P9	Scott Keegan	Music
Margaret Byrne	ES	Daniel Kern	P24
Olivia Campbell	O7.2	Stephanie Khatcherian	P25
Brittany Childs	P10	Miranda Kiefer	P10
Jessica Clemens	P11	Rosa Kleinman	O6.3
Emily Coles	O11.4	Maria Klingele	P26
Rebeca Cruz	P12	Lauren Knaack	P27
Michael Czajkowski	ES	Eugene Kuzmin	O5.3
Patrick Dahl	P13	James Lam	O3.3
Maribeth Dahlberg	ES	Daniel LaRocca	P28
Cara Deverman	ES	Adam Law	O1.4
Daniel DeWeert	O6.4	Duncan Lawson	O1.3
Katie Dietrich	ES	Kristin Lee	ES
Ben Dombroski	ES	Keith Lehuta	P29
Maria Duda	O6.1	Jessica Madigan	ES
Kathleen Ellison	ES	Michael Mann	O5.1
Jennifer Fitton	O4.1	Tian Mao	P30
Jenna Frazier	ES	David Martz	O5.4
Kirsten Fredrickson	P14	Paige Maynard	O1.1

continued.....

STUDENT PARTICIPANTS

Oral and Poster Presentations

Paige Maynard	O12.3	Elisabeth Sonta	P47
Andrew McDonald	P31, P32	Katherine Spencer	Music
Lisa McLuckie	O3.1	Erica Stein	O3.2
Jordan Menendez	P33	Matthew Styx	P48
Jessica Meyer	O11.3	Stephanie Swope	P49
Jennifer Monaco	ES	Caitlyn Trevor	Music
Aaron Moore	P34	Amy Uden	O2.1
Jaclyn Morrison	O4.2, ES	Danielle Wall	ES
Carl Mueller	P13	Elizabeth White	O4.4
Meg Nally	ES	Whitney Wilkerson	P50
Erica Needles	ES	Ariana Wilkey	ES
Ryan Nielsen	O11.2	Alex Willett	P51
Lawrence Nord	O1.2	Sarah Wilson	ES
Stephanie Nudelman	ES	Nathaniel Wolanyk	P52
Adebola Olayinka	P37	Erica Woodall	P53
Amanda Packman	ES	Genevieve Zachas	ES
Deming Payne	O7.1	Kathleen Zeman	O4.3, ES
Kelsey Porter	ES	Shuting Zhong	P54
Kyle Portnoy	O7.3	Taole Zhu	O8.2
Chao Ren	O2.3	Amy Zumbahlen	O9.2
Ted Richards	P38		
Alexandra Richardson	ES		
Gwenlyn Robinson	O11.1		
Kristin Robinson	O12.4		
Katelyn Robisky	ES		
Rachel Rock	ES		
Jason Roeschley	O10.2		
Derrick Rohl	P39		
Travis Rosenkranz	P40		
Stephanie Ross	ES		
Andrew Ross	P41		
Jenna Rowland	O10.3		
Mike Salkeld	O9.1		
Tyler Saunders	P31		
Colin Schofield	O10.4		
Kimberly Schuetz	ES		
Jacqueline Schwarzentraub	ES		
Lauren Seidner	P42		
Lukasz Sewera	P31, P43		
Luke Sheen	P44		
Claire Shoup	ES		
Kyle Sloan	P45		
Vanessa Snyder	P46		

**BA/BFA SENIOR CRITIQUE HONORS
SCHOOL OF ART**

Saturday, April 9, 2011, 2:30 p.m., Merwin and Wakeley Galleries

Student Presenters:

Lindsey DeSutter

Jamie Kang

Victoria Poll

Erin Hussey

Refreshments will be served

MUSIC STUDENT PRESENTATIONS

Saturday, April 9

11 a.m.

Center for Natural Sciences C101

Katherine Spencer '11, moderator

Bringing Up Baby, The Two Leopards

Caitlyn Trevor '14

Hannah Montgomery, Sam Birsa, cello
Keanan Koppenhaver, horn

Honor and Fatalism in Verdi's *Il Trovatore*

Jack Hanlon '11

Study for Clarinet

Scott Keegan '12

Juan Hernandez, clarinet

12:15 p.m.

**Main Lounge, Memorial Student Center
(as part of conference luncheon program)**

Winter's Folly

Katherine Spencer '11

Kaitlyn Zawacki, violin
Whitney Wilkerson, viola
Hannah Montgomery, cello
Queenie Li, piano
Katherine Spencer, voice

Music Presentation

BRINGING UP BABY, THE TWO LEOPARDS

Caitlyn Trevor and David Vayo*
School of Music, Illinois Wesleyan University

This piece is a soundtrack written to a clip from the film *Bringing up Baby*. Directed by Howard Hark in 1938 and starring legends Katherine Hepburn and Carry Grant, it's an old romantic comedy. Amid classic elements of this genre, there is a mix-up over two leopards, one tame and one wild. This clip is near the end of the film and resolves this mix-up. With this score, I tried to bring out the correct emotions in the scene, such as when there is considerable tension and action, I have the cellos playing sixteenth notes in chromatic patterns and dissonant intervals to mirror the discomfort on screen. While trying to bring these emotions out, I also tried to place the music correctly in regards to where important lines and actions were and keep my music new while still fitting the atmosphere of that time period.

Note: The following should be an Oral Presentation, not a Music Presentation as listed. The Faculty Advisor was Adriana Ponce, and not David Vayo.

Music Presentation

Honor and Fatalism in Verdi's *Il Trovatore*

Jack Hanlon and David Vayo*

School of Music, Illinois Wesleyan University

Giuseppe Verdi's 1853 opera *Il Trovatore* has long stood as one of the premier dramas of the nineteenth century for its compositional craftsmanship and its remarkable, quintessentially Romantic story line. Leading research thus far on *Il Trovatore* has largely focused on the overall structure, pacing, harmonic language, and individual characters of the opera. This paper takes such research farther via the means of both textual and musical analysis in order to demonstrate the complexity of the characters' relationships and to discern an underlying moral philosophy present in the opera. More specifically, it shows that Verdi's opera draws an inverse relationship between the leading men's sense of honor and their ability to express authority over their situation. To draw such a connection, Verdi ascribes multiple, distinct roles for each character, and it is the interplay between each role within each character and between other characters that ultimately defines the *tinta* of the entire work.

Music Presentation

STUDY OF KLEZMER MODES FOR SOLO CLARINET

Scott Keegan and David Vayo*
School of Music, Illinois Wesleyan University

This piece was conceived of in three parts; a prelude section, developmental section, and postlude section. The prelude and postlude sections of the piece act as bookends to the middle section and serve as meditative passages contrasting the activity and energy of the middle section. Most notably, the outer sections utilize clarinet multiphonics, an extended technique that allows the clarinet to sound multiple notes simultaneously. These sections also include a motive that occurs later in the developmental section, as if the prelude material is a distant premonition of what is to come. The developmental section of the piece utilizes the primary klezmer modes, which are modes that originate from the Hebraic prayer modes. The particular clarinetist this piece was commissioned by, Juan Hernandez, has studied klezmer-style performance last semester and will also utilize some of these techniques in the performance of the piece where indicated.

Music Presentation

WINTER'S FOLLY

Katherine Spencer and David Vayo*
School of Music, Illinois Wesleyan University

Winter's Folly is an indie-art composition written for voice with accompanying instruments. Reminiscent of Schubert Lieder and contemporary folk songs, the lyrics reflect the fear of an uncertain future but a determination to face who you are meant to be. The chord at the end of the piece conveys the hope for change and transformation. *Winter's Folly* will form part of a four-song cycle based on the seasons.

ORAL PRESENTATIONS - SESSION 1
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (E101)
MODERATOR: Olivia Campbell

- 1.1 Paige Maynard
- 1.2 Lawrence Nord
- 1.3 Duncan Lawson
- 1.4 Adam Law

ORAL PRESENTATIONS - SESSION 2
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (E102)
MODERATOR: Kimberly McDonald

- 2.1 Amy Uden
- 2.2 Michael Browning
- 2.3 Chao Ren

ORAL PRESENTATIONS - SESSION 3
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (E103)
MODERATOR: Mike Salkeld

- 3.1 Lisa McLuckie
- 3.2 Erica Stein
- 3.3 James Lam

ORAL PRESENTATIONS - SESSION 4
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (E104)
MODERATOR: Jason Roeschley

- 4.1 Jennifer Fitton
- 4.2 Jaclyn Morrison
- 4.3 Kathleen Zeman
- 4.4 Elizabeth White

ORAL PRESENTATIONS - SESSION 5
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (E105)
MODERATOR: Kyle Portnoy

- 5.1 Michael J. Mann
- 5.2 Graham Boden
- 5.3 Eugene Kuzmin
- 5.4 David Martz

ORAL PRESENTATIONS- MUSIC- SESSION 6
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (C102)
MODERATOR: Kendal Held

- 6.1 Maria Duda
- 6.2 Jenna Johnson
- 6.3 Rosa Kleinman
- 6.4 Daniel DeWeert

ORAL PRESENTATIONS - SESSION 7
11:00 – 12:00 noon
CENTER FOR NATURAL SCIENCES (E101)
MODERATOR: Tian Mao

- 7.1 Deming Payne
- 7.2 Olivia Campbell
- 7.3 Kyle Portnoy
- 7.4 Walker Ambrose

ORAL PRESENTATIONS - SESSION 8
11:00 – 12:00 noon
CENTER FOR NATURAL SCIENCES (E102)
MODERATOR: Christopher Brackett

- 8.1 Evan Baker
- 8.2 Taole Zhu

ORAL PRESENTATIONS - SESSION 9
11:00 – 12:00 noon
CENTER FOR NATURAL SCIENCES (E103)
MODERATOR: James Lam

- 9.1 Mike Salkeld
- 9.2 Amy Zumbahlen
- 9.3 Caitlin Giudice

ORAL PRESENTATIONS – SESSION 10
11:00 – 12:00 NOON
CENTER FOR NATURAL SCIENCES (E104)
MODERATOR: Jaclyn Morrison

- 10.1 Kristen Gattuso
- 10.2 Jason Roeschley
- 10.3 Jenna Rowland
- 10.4 Colin B. Schofield

ORAL PRESENTATIONS – SESSION 11
11:00 – 12:00 NOON
CENTER FOR NATURAL SCIENCES (E105)
MODERATOR: Hannah Becker

- 11.1 Gwenlyn Robinson
- 11.2 Ryan Nielsen
- 11.3 Jessica L. Meyer
- 11.4 Emily Coles

ORAL PRESENTATIONS – SESSION 12
11:00 – 12:00 NOON
CENTER FOR NATURAL SCIENCES (C102)
MODERATOR: Dan DeWeert

- 12.1 Anna Genchanok
- 12.2 Lauren Hansen
- 12.3 Paige Maynard
- 12.4 Kristin B. Robinson

ORAL PRESENTATIONS – MUSIC – SESSION 13

11:00 – 12:00 NOON

CENTER FOR NATURAL SCIENCES (C101)

MODERATOR: Katherine Spencer

- 13.1 Jack Hanlon
- 13.2 Caitlyn Trever
- 13.3 Scott Keegan

ORAL PRESENTATIONS – EDUCATIONAL STUDIES

AMES LIBRARY

MODERATOR: Leah Nillas

Danielle Wall

Ben Dombroski

Katie Dietrich

Presentations are 10-15 minutes in length. If time permits, there will be a question-and-answer period for all presenters following the final presentation

Oral Presentation O1.1

**THE EFFECT OF NICHE OCCUPATIONS IN INCOME:
A CLOSER LOOK AT CHINESE, FILIPINO, AND ASIAN INDIAN IMMIGRANTS**

Paige Maynard and Michael Seeborg*
Economics Department, Illinois Wesleyan University

As the number of high achieving immigrants in the United States is on the rise, the question as to how these immigrants are being rewarded in the U.S. labor market is interesting to consider. These high achieving immigrants are commonly entering the labor market in ethnic niche occupations, where a large number of their own countrymen are employed. By looking at the three largest high achieving immigrant groups in the U.S., the Chinese, Filipino, and Asian Indians, and their respective niches, we can see the effects of the niche occupations on immigrant earnings. Both human capital theory and network theory speak to immigrant occupations and earnings and are further discussed over the course of this study. Using census data a series of OLS regressions are conducted which identify the overall effects of not only immigrant status on income, but also how immigrant niche occupations affect income.

JEL codes: J31, J61, J82

Oral Presentation O1.2

**R & D INVESTMENT LINK TO PROFITABILITY:
A PHARMACEUTICAL INDUSTRY EVALUATION**

Lawrence J. Nord and Ilaria Ossella-Durbal*
Economics Department, Illinois Wesleyan University

This paper is an in depth analysis of the influence that investment into research and development has on a firm's profitability in the pharmaceutical industry in the United States. The pharmaceutical industry is chosen due to its high intensity of research and development expenditures. The top 18 companies in the pharmaceutical industry are gathered and organized as panel data dating over the recent regression, which encompassed three years. The data are analyzed through regression and descriptive statistics.

The argument made is that as more funds are invested into research and development a firm in the pharmaceutical industry will experience a higher market value. Theoretically as firms spend more on research and development they are increasing the likelihood of innovation, which will cause growth in the company. The results of this study agree, and a positive and significant relationship is found between research and development expenditures and market value.

Oral Presentation O1.3

RIGHT-TO-WORK LAWS EFFECTS ON UNEMPLOYMENT AND WAGES

Duncan Lawson and Michael Seeborg*
Economics Department, Illinois Wesleyan University

Labor market relations and any policies that have an effect on these relations should be important to any individual associated to any labor market. One of these policies that has been passed in select states across the United States of America are Right-to-Work Labor Laws. (RTW) These laws effectively limit the powers of the labor unions by allowing workers to elect or decline to join the union or not. The reduction in members brought on by these laws will limit the collective bargaining powers of the unions and successfully limit the powers of unions. It is thought that this should ensure more jobs in the states that have passed these labor laws, creating a lower unemployment rate than states that have not passed these laws. The lower unemployment rate comes at a sacrifice of wages and the states that have RTW laws, it is thought will have a lower wage rate.

Oral Presentation O1.4

THE DETERRENT EFFECT OF CAPITAL PUNISHMENT

Adam Law and Amit Ghosh*

Economics Department, Illinois Wesleyan University

Since the reintroduction of capital punishment in 1976 1,242 people have been executed in the United States. One of the main reasons commonly given in support of capital punishment is that its usage serves to deter other potential criminals from committing homicides. However, there is no scholarly consensus on whether or not such a deterrent effect does in fact exist. This project examines this by building on the work of Dezhbakhsh and Shepherd (2003) and using a panel set of data for all fifty states from 2000 to 2009. If no deterrent effect exists, as the results of this project suggest, it seems prudent to abolish the practice and move instead to a system in which life imprisonment is the maximum punishment one can receive.

Oral Presentation O2.1

**REDISTRICTING AND THE PUBLIC INTEREST: DEVELOPING A
VALUE-EXPLICIT DIALOGUE**

Amy Uden and Jim Simeone*

Political Science Department, Illinois Wesleyan University

Throughout the coming year, legislators will take up the decennial responsibility of drawing new boundaries for legislative districts. Political scientists and practitioners often emphasize the profound impact of redistricting on political careers, process, and policy. However, the ultimate goals of redistricting remain controversial. Redistricting plays a large role in establishing the framework for American politics, and is thus directly linked to representation and the “public interest,” a contested theoretical concept. Using the lens of previous public interest theory, this study examines the historical redistricting dialogue through a content analysis of redistricting-related Supreme Court cases. By applying an analysis of Brian Barry’s ideal- or want-regarding classifications of the public interest, this research finds that methods of legislative redistricting have trended toward want-regarding concepts of the public interest. Bolstered by an analysis of contrasting redistricting policy in the neighboring states of Illinois and Iowa, this paper concludes with a call for a more value-explicit theoretical dialogue surrounding the process of legislative redistricting.

Oral Presentation O2.2

**SUPREME COURT RESPONSIVENESS: AN ANALYSIS OF INDIVIDUAL
JUSTICE VOTING BEHAVIOR AND THE ROLE OF PUBLIC OPINION**

Michael Browning and Greg Shaw*

Political Science Department, Illinois Wesleyan University

Despite leading the unelected branch of the federal government, research shows that the Supreme Court regularly decides in line with the public's mood. This study aims to explain why the Supreme Court responds to public mood by analyzing the liberalism of individual justices compared to the liberalism of the general public from 1953 to 2005. Three theories suggesting why the Court may respond to public opinion are discussed, including replacement, political adjustment, and the attitude change hypotheses. An argument for using Court reversals to determine the ideology of the Court is presented and implemented. The Court is analyzed as an institutional actor among the other branches of government, and individual justices are examined as actors within the larger framework of the Court. Public reaction to the Court is also studied as an examination of the Court's role in society.

Oral Presentation O2.3

**MONGOL PAST AND MANCHU PRESENT:
HISTORY AND ETHNICITY IN WEI YUAN'S THOUGHT**

Chao Ren and Thomas Lutze*

History Department, Illinois Wesleyan University

As an important early figure in the intellectual history of late Qing China, Wei Yuan has widely been understood as an introducer of Western learning to China. He is also remembered among scholars as a key figure in the late Qing Neo-Text classicist movement, which was closely related with his political ideals. However, a major aspect of Wei Yuan's thought has been neglected in previous scholarly studies: no study of Wei Yuan, either in English or in Chinese, has ever studied his role as a historian. Why did Wei Yuan, himself a Han Chinese, compile two huge series of the histories of the Mongol (Yuan) and Manchu (Qing) dynasties? How did he conceptualize the relationship between history writing and his political ideal? This research project is going to examine Wei Yuan's historiography (with special attention on ethnicity) and his influence on the intellectual history of late Qing China.

Oral Presentation O3.1

EXTREME TAX MAKEOVER

Lisa McLuckie, Erica Stein, and Darryl Brown*
Business Administration Department, Illinois Wesleyan University

Our topic for this research paper will discuss the tax consequences of the reality television show “Extreme Makeover Home Edition” where host Ty Pennington and the people at ABC Family provide a new, custom designed home for families in need. We will begin by providing a brief description of premise of the show, and transitioning into how the lawyers for ABC Family have structured the plan for providing the building of the home tax-free for the family. The tax consequences of this show will be the focus of our presentation, but we will also briefly describe various other shows where the contestants are in need of the prizes they receive but may not necessarily have the means to pay the taxes associated with such prizes such as “What Not to Wear.”

We will then begin our discussion of problems relating to these types of shows and the unforeseen tax consequences that come along with the prizes. Most of the families or recipients are low-income and struggle to make enough money to survive let alone pay the property taxes on a million dollar home. Since these homes are typically built in low-income neighborhoods, there are also property tax consequences for the surrounding houses. We will use court cases to provide support to our opinions on the IRS practices regarding these types of receipts.

From this point, we will discuss how Congress ignores certain tax laws such as the catching of baseballs at professional baseball games and commercial fishing. To conclude our presentation, we will share our opinion on the treatment of such prizes and how the practice of taxation regarding baseballs should be somehow applied to the deserving recipients of the prizes on these shows.

Oral Presentation O3.3

NEW EVIDENCE ON THE WEALTH TRANSFER DURING THE ARGENTINE CRISIS

James Lam and Elisabeta Pana*

Business Administration Department, Illinois Wesleyan University

In this study, we investigate the wealth preservation hypothesis during the Argentine crisis and revisit the theory of wealth transfer from Argentina to the United States. We show that the boom experienced by the Argentine stock market is explained by both the wealth preservation through top non-ADR stocks and by the wealth transfer through ADR stocks. Argentine investors without access to trading abroad preserved wealth by converting their bank deposits into the most liquid ADR and non-ADR stocks. An investment in a portfolio of less liquid ADRs resulted in a wealth loss, unless used as a vehicle to transfer funds abroad.

Oral Presentation O4.1

THE AVAILABILITY AND EFFECTIVENESS OF HEALTH INFORMATION AND MATERIALS IN SPANISH IN BLOOMINGTON-NORMAL, IL

Jennifer Fitton and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

This study examines the availability of health information in Spanish and to determine the effectiveness of the materials for Spanish-speaking patients in the Bloomington-Normal community. The research questions are: Where is health information in Spanish found and in what forms?, What health topics have information available in Spanish?, Do the Spanish-speaking patients think this information is relevant, effective and comprehensible? Data will be collected through observations at local hospitals and health clinics as well as through surveys and interviews with Hispanic patients. The conclusions from this study are important since consequences of unequal access to health information may lead to untreated health issues. Suggestions on how to alleviate this potential issue will be provided.

Oral Presentation O4.2

LANGUAGE CHOICE OF HIGH SCHOOL STUDENTS IN CENTRAL ILLINOIS

Jaclyn Morrison and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

Numerous studies have investigated the maintenance and loss of the Spanish language in metropolitan cities with a large Hispanic population. Few studies of this type have been conducted in smaller cities with a high prevalence of Spanish speakers. This study will explore the language use among Spanish-speaking high school students in Bloomington/Normal, Illinois. The data will be collected via a questionnaire similar to the one used in Stone (1987) with minor changes to accommodate the population. The goal of this study is to gain an understanding of the language usage, domains of usage, and attitudes toward English and Spanish among high school students in the community. A description of the use of English and Spanish among Spanish-speaking students may be an important factor in the maintenance or loss of Spanish in Bloomington. Furthermore, the conclusions of this study may provide ideas about the attitudes that these students preserve about these two languages.

Stone, Gregory. (1987). Language choice among Mexican-American high-school students in Saint Paul, Minnesota: Some preliminary findings. In J. Matluck, T. Morgan, J. Lee, & B. VanPatten (Eds.), *Language and language use: Studies in Spanish* (pp. 147-159). Lanham, MD: University Press of America.

Oral Presentation O4.3

SPANISH LANGUAGE REPRESENTATION IN ILLINOIS MEDIA

Kathleen Zeman and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

This study is a replication of Knauer (2005) and explores how Spanish language is represented in the media in Bloomington and Palatine, IL and the possible effect that its presence or lack thereof has on the maintenance of the Spanish language in the United States. The research question is if a strong presence of Spanish media correlates with the maintenance of identity and language while living in the United States. The study also explores if there is a difference in the amount of Spanish media available based on location- a semi-rural town versus a large suburb of Chicago. Information will be collected in a variety of forms including data from the 2010 U.S. Census, observation from examples of Spanish media (radio, television, and newspaper), and interviews with native Spanish-speakers. In the 2005 study, Knauer concluded that the media does contribute to Spanish language maintenance in the United States. However, culturally, Knauer concludes that the media combines Hispanic and American images and symbols. As a result, Hispanic identity is being maintained, but with a North American influence. Similar to Knauer's results, I hope to find that the presence of Spanish media aids Spanish-speakers in language maintenance. I also hope to investigate and take notice of the American influence on Spanish media and determine if this identity combination encourages Spanish-speakers to maintain their distinctive Hispanic identity or assimilate to "United States culture".

Knauer, G. (2005). Lengua y medios de comunicación étnicos: El caso del español de EE. UU. In V. Noll, K. Zimmermann, I. Nuemann-Holzschuh (Eds.), *El español en América: Aspectos teóricos, particularidades, contactos* (pp. 133-150). Madrid: Iberoamericana.

Oral Presentation O4.4

**VIOLENCE IN RELIGIOUS IMAGERY: REPRESENTATIONS OF THE VIRGIN
MARY IN ALFONSO X'S *LAS CANTIGAS DE SANTA MARÍA***

Elizabeth White and Carolyn Nadeau*
Hispanic Studies Department, Illinois Wesleyan University

Las Cantigas de Santa María is a thirteenth-century collection of over 400 poems commissioned by King Alfonso X of Castile and Leon. These Marian miracle poems are represented in a variety of media including written text, songs, and illuminations. Throughout these works, Mary takes on many roles including: the Queen of Heaven, the Mother of Christ, and God's divine intercessor. This investigation will use select *cantigas* and their respective illuminations to examine the image of Mary when she intervenes on God's behalf. Special attention will be paid to instances of violence, as we try to understand the representations and implications of the "violent Virgin".

Oral Presentation O5.1

***LIS PENDENS* AS AN INDICATOR OF MORTGAGE QUALITY:
MCLEAN COUNTY, ILLINOIS**

Michael J. Mann and Diego Mendez-Carbajo*
Economics Department, Illinois Wesleyan University

This paper studies the time series components of *lis pendens* in McLean County, Illinois for a period of 252 months, from January 1990 through December 2010. A *lis pendens* is defined as a lawsuit filed against a specific property, which begins the foreclosure process. The variable allows for mortgage quality to be quantitatively analyzed, and can be intuitively identified as a leading indicator of foreclosure. Existing empirical literature has documented a link between declining mortgage quality and the health of the American housing market, though few authors use *lis pendens* as a primary tool to measure mortgage quality. Since the sample period overlays multiple expansionary and contractionary episodes in the American economy, a macro-level cyclical component can be established. Along with this find, two distinct trend components can be calculated – the second of which can be seen as alarmingly positive. Ultimately, an autoregressive moving average model is developed using Box Jenkins methodology in an attempt to forecast future values of the series.

Oral Presentation O5.2

**FINANCIAL CRISES AND MORTGAGE ASSIGNMENTS:
MCLEAN COUNTY, ILLINOIS FROM 1990-2010**

Graham Boden and Diego Mendez-Carbajo*
Economics Department, Illinois Wesleyan University

This paper analyzes the number of mortgage assignments in McLean County, Illinois from 1990 to 2010, attempting to identify a relationship between the number of mortgage assignments and the general business cycle through the use of time series analysis techniques, including trend-fitting and identification of seasonal effects. Monthly data, from January 1990 to December 2010, was collected from the McLean County Recorder's Office database, a total of 252 observations. For the most part, the number of mortgage assignments follows a constant and linear pattern. However, several spikes in the number of mortgage assignments in the years 1993, 2003, and 2006 appear to coincide with economic recessions in the United States. These spikes indicate that, although the number of mortgage assignments per month tends to remain constant, the number increases during recessions.

Oral Presentation O5.3

**TIME SERIES ANALYSIS OF RECAPTURE AGREEMENTS IN
MCLEAN COUNTY, ILLINOIS**

Eugene Kuzmin and Diego Mendez-Carbajo*
Economics Department, Illinois Wesleyan University

This study concerns the number of monthly recapture agreements granted by the Illinois Affordable Housing Tax Credit Program. It is important to study the frequency of these agreements because their number indicates the amount of real estate purchased with the help of this program. I will conduct several different time series analyses: fitting linear trends, finding seasonal or cyclical effects, determining the presence of unit roots, and fitting an ARMA process to the series. The data obtained ranges from January of 1997 to December of 2010 with 168 observations. The data were obtained from the recorder's office in McLean County, Illinois, and are measured in the number of recapture agreements made each month. There are 2 clear breaks in the data, one in December of 2002 and the other in August of 2007. While the data before the first break and the data after the second break are relatively stationary, the middle segment has a positive slope that implies that there was a change in the frequency of housing purchased with the help of the Illinois Affordable Housing Tax Credit Program.

Oral Presentation O5.4

THE FREQUENCY OF LEASES IN MCLEAN COUNTY

David Martz and Diego Mendez-Carbajo*
Economics Department, Illinois Wesleyan University

This project studies the frequency of leases consummated in McLean County from January of 1990 through December of 2010. The data, which was collected from the McLean County Public Records database, was collected monthly and resulted in a total of 252 observations. McLean County is ideal for this study because of the diverse mixture of property lessees; the data showed leases for business purposes, residential purposes, and a large number for wind farms. The project studies long term trends, seasonal components, and autoregressive and moving-average components in order to project the data into the future. The results of this project can be used to better understand the growth of the economy by observing past trends of the data. Furthermore, by projecting the number of leases agreed upon per month into the future, we will be able to predict the data into the immediate future and better predict the state of the economy in the coming months.

Oral Presentation O6.1

**THE ATHENIAN INSTITUTION OF ADOPTION DURING THE FOURTH CENTURY
BCE: A REFLECTION OF AND CONTRIBUTION TO ATHENS' PATRIARCHAL
SOCIETY**

Maria Duda and Nancy Sultan*

Greek and Roman Studies Department, Illinois Wesleyan University

I argue that the practice of adoption in fourth century Athens served not only to preserve the family line and secure a caretaker for aging parents, but more importantly, adoption was understood as an essential expression of a male citizen's power over women through the continuation of their particular understanding of patriarchy. The process of adoption was restricted to the male sector of the population, was male-centered and misogynistic. The State of Athens did not impose adoption upon its male citizens, but rather made it the responsibility of the individual to find an heir if he did not produce a son; I argue that the male citizens of Athens were self-motivated to adopt a son from a fear of losing their power and their control over women. Through the lens of the philosophy of Althusser in conjunction with Allan Johnson and Adrienne Rich's interpretations of patriarchy, I provide an explanation as to why, as proposed by Lene Rubenstein, Athens did not need to compel citizens to adopt. Rather, the citizens chose to adopt to secure the continuing male control of the city.

Oral Presentation O6.2

ISIS IN ANCIENT OSTIA: RELIGION, COMMERCE, AND POLITICS

Jenna Johnson and Nancy Sultan*

Greek and Roman Studies Department, Illinois Wesleyan University

This paper examines the various epithets of Isis associated with shipping and harvest that gained importance in Ostia and later the Roman Empire due to Isis's strong connection with the Egyptian grain trade during the Imperial period. The grain trade was essential to Rome because the city could not feed itself without the importing grain from Egypt into Ostia. As a main port city, Ostia attracted sailors who brought with them traditions from other cultures creating a more open and diverse environment. This enabled for the cult of Isis to flourish, when previously the worshippers of Isis were scorned in Rome. In exploring Isis's popularity I examined archaeological evidence from Ostia such as frescos, coins, and terracotta objects in order to document how her iconography is depicted throughout Ostia. I found that Isis's popularity grew in direct correlation with the increasing importance of the grain trade causing her to become a popular symbol representing the imperial cult at the height of her popularity. This is significant because it demonstrates Ostia's unique synergy through its interconnection of religion, commerce, and politics within the Mediterranean world.

Oral Presentation O6.3

**NARRATIVES OF FEAR AND SHAME: JEWISH CHILDHOOD IN SOVIET
AND POST-SOVIET LIFE WRITING**

Rosa Kleinman and Marina Balina*

Modern and Classical Languages and Literature Department, Illinois Wesleyan University

This presentation will examine the childhood recollections of Russian/Soviet-Jewish authors Samuil Marshak and Dina Rubina. When Marshak recollected his pre-revolutionary childhood experience in his 1961 narrative, he was forced to write his memoirs from the Soviet vantage point, emulating the anti-childhood model of poverty, neglect, and unhappiness established in Maxim Gorky's childhood reminiscences. Marshak's task of writing about his childhood in happy terms was further complicated by the fact that he was Jewish. Anti-semitism, though officially condemned by the Soviet government, was still strong in the 1960s when Marshak wrote his memoir. His solution was to omit large sections of his narrative related to his Jewish experience, leaving conspicuous gaps for the compassionate reader to fill in. In contrast to Marshak, Dina Rubina wrote about her Jewish experience in the 1990s, purposely positioning her Jewishness at the center of her Soviet childhood recollections. Writing about her Soviet experience in post-Soviet times, however, allowed Rubina the freedom to reveal the necessary details of her childhood without forcing them through the anti-childhood filter. These different narrative approaches provide a complicated identity map which reveals the continued complexity and sensitivity of Russian-Jewish quest for self-identity.

Oral Presentation O6.4

THE SICK PERSON AND SCIENCE: RELIGION'S ROLE IN MEDICINE AND SOCIETY TODAY

Dan DeWeert and Kevin Sullivan*

Religion Department, Illinois Wesleyan University

The secularization thesis predicts that science will eventually render religion useless due to inherent incompatibilities. This language has been imposed on medicine. Modern discourses have created a conflict between scientific competence and more humanistic aspects of medicine, making it a practical, real-world battleground for the articulation of this debate.

I will use the secularization thesis to analyze the unusual role of medicine as both a scientific discipline and a venture into the moral realm, emphasizing the fact that it includes a very human element driven by particular beliefs and motivations. Both of these have been influenced by religion. The way humans understand nature directly impacts the possibility of the scientific method, and these understandings have largely been shaped by religious assumptions about the world. Similarly, religion has affected the role of the sick person in society, which involves healing, the body, ethics, and a community responsibility towards the sick. Though individuals have always been healers, institutionalizing healthcare through the creation of hospitals indicates a profound shift of values. The Greeks did not share these convictions, and thus did not have a true science or a community responsibility towards healing. We cannot assume these modern values; the philosophy of Nietzsche from the 19th century is an example of an alternative framework where the sick had no place in society.

I will show how the language of the secularization thesis has been imposed on medicine, creating the distinct categories of science and non-science. Further, the secularization thesis indicates that medicine's future is as a purely scientific discipline. I will use it to show medicine to be both a scientific and moral endeavor, but will argue that both aspects of the dichotomy are valuable, and that that non-science underpinnings (moral, religious, and humanistic) are ancient; these contributions cumulate in ancient Greece around the 5th century B.C. I will evaluate the integral connection between religion and medicine by showing the positive contributions of a non-science tradition—specifically, Christianity in the West—to both the scientific and non-scientific traditions in medicine. Christianity has contributed to this structure by building upon the contributions of the ancient Greeks, bringing forward shifts in both realms—(1) assumptions about nature that allow modern science and (2) a new understanding of sickness—that have created the paradigm in which modern medicine exists. Medicine is a practical example of the secularization thesis applied and overcome; it illustrates how a “scientific” discipline is inextricably bound to religion, both historically and in contemporary expectations. These scientific and moral foundations of medicine have never gone away; assumptions provided by religion remain crucial for the scientific and moral capacities of the modern doctor. Christianity thus shows that the secularization thesis is a myth regarding Western medicine, which corresponds to many scholars' conclusions about the thesis more generally. This is a lens to look at the role of religion and ethics in scientific conversations in today's pluralistic and secular society.

Oral Presentation O7.1

EDUCATIONAL FACTORS ON STUDENT ACHIEVEMENT

Deming Payne and Robert Leekley*
Economics Department, Illinois Wesleyan University

This paper examines what factors have the greatest impact on student educational achievement with special attention to factors that school districts and governmental bodies can manipulate through policies. In order to maximize student educational achievement, it is imperative to determine which factors have the greatest and most significant impact on test scores. Because the private school system is structurally different from the public school system, the two types of schools are analyzed separately. Although there have been many articles looking at educational factors and their impact on student achievement, few include as many factors as the ones included in this paper. Factors that cannot be manipulated through policy will be controlled for in the regression analysis.

Oral Presentation O7.2

THE ENVIRONMENTAL KUZNETS CURVE AND POLITICAL FACTORS

Olivia Campbell and Robert Leekley*
Economics Department, Illinois Wesleyan University

Global climate change has become a prominent issue in today's global community, prompting investigations into the application of the Environmental Kuznets Curve to policy solutions. This paper estimates a global Environmental Kuznets Curve for carbon dioxide emissions and examines the political factors that affect the height and turning point of the curve using cross-country data for each variable. The model attempts to include all attributes and policies of country's government as variables, such as the type of political institution, corruption levels, trade openness, the presence and strictness of environmental regulations, and the ratification of the Kyoto Protocol. These variables are investigated by utilizing the existing literature and theory regarding their relationship with the EKC, and their significance is tested through a linear regression to determine their impact on carbon dioxide emissions and the EKC.

Oral Presentation O7.3

**HIGH FREQUENCY TRADING AND THE STOCK MARKET: A LOOK AT
THE IMPACT OF TRADE VOLUME ON STOCK PRICE CHANGES**

Kyle Portnoy and Diego Mendez-Carbajo*
Economics Department, Illinois Wesleyan University

As high frequency trading becomes more prevalent in the stock market, investors are wondering whether or not the technique is helping or hurting their ability to earn a profit. By analyzing the relationship between trade volume and price change this study provides insights as to whether the influx of computer trading is increasing liquidity and stability or if it is creating more volatility and artificially inflating stock prices. This study focuses on prices and trade volumes of the Dow Jones Industrial Index on a weekly basis from 2000 to 2010. Cross correlation tests were conducted to verify the presence of a volume-price change relationship and regressions were run to test the direction of causality. Results show that the correlation between volume and price change is significantly stronger since the inception of high frequency trading.

Oral Presentation O7.4

SUBORDINATION AGREEMENTS IN MCLEAN COUNTY

Walker Ambrose and Diego Mendez-Carbajo*
Economics Department, Illinois Wesleyan University

This study examines the frequency of subordination agreements in the surrounding McLean County from the years 1990-2010. A subordination agreement is a notarized contract between a lender and a debtor to subordinate a first loan from a mortgage or deed of trust to a new loan. This is an important study because it will help banks, businesses, and homeowners observe the trends of subordination agreements in the surrounding local area which may influence future trends. My study will analyze time series data utilizing autoregressive and moving-average (ARMA), and seasonal components to forecast future trends. The data is collected monthly and made available in an online database by the McLean County Recorder's Office. For the series 01:1990 to 12:2010 there are 252 observations that were collected. Over time the data shows a positive trend with a few instances of explosive behavior; the most extreme occurrence begins in late 2001 as subordination agreements soar, peaks in 2003 and extends into early 2004. The maximum number of agreements made in this short outburst was 286 in July 2003. There is also a downturn of subordination agreements just after the financial recession of 2008 indicating a shift in behavior in spending habits.

Oral Presentation O8.1

CREATING A SIMPLE OPEN SOURCE MATLAB PROGRAM USED TO CONTROL ADAPTIVE OPTICS

Evan Baker, Carl Mueller, Patrick Dahl, Nathaniel Wolanyk and Gabriel Spalding*
Physics Department, Illinois Wesleyan University

Our goal is to contribute to the development of **self-assembling** structures that will allow for a whole new class of smart materials. To create sophisticated structures of this sort, the goal is to engineer each specific type of **microparticle** to be included in the mix, so as to constrain the ways in which it can bind to other micro/nano components in solution. Towards this end, we need to *measure* the interactions between particles at the individual component level. We are developing an optical trapping system that is optimized for this purpose. The use of acousto-optic deflectors (AODs) with digital frequency synthesizers allows, in theory, *very* precise position control over optical traps. However so as to generate these optical traps at the lowest laser power levels possible (to avoid unintended heating effects) we need to correct for significant optical aberrations introduced by the acoustic deflectors. My talk will explain our progress in correcting for these aberrations, related specifically to the MATLAB code I have developed. The larger goal of this work is to allow us to measure the forces and interactions of these microparticles to pico-Newton resolution (femto-Newton resolution may be possible).

Oral Presentation O8.2

B-COLORING OF REGULAR GRAPHS

Taole Zhu and Josh Brown-Kramer*

Mathematics Department, Illinois Wesleyan University

Abstract. A graph is an ordered pair $G=(V,E)$, comprising a set V of the vertex set with a set E of the edge set. We have a coloring of the vertices, denoted b -coloring, in such a fashion: 1) every vertex receives a color different from its neighboring vertices; 2) every color class contains a vertex that has a neighbor in all other color classes. The b -chromatic number $b(G)$ of a graph G is the largest integer k such that G has a b -coloring with k colors. We prove that for any d -regular graph with girth 5, the b -chromatic number is at least $\frac{d+1}{2}$.

Oral Presentation O9.1

**DETERMINANTS OF BANKS' TOTAL RISK: ACCOUNTING RATIOS AND
MACROECONOMIC INDICATORS**

Mike Salkeld and Jeungbo Shim*

Business Administration Department, Illinois Wesleyan University

During the recent financial crisis, 339 U.S. banks failed whereas only 24 banks failed from 2000-2007. It is important to identify how banks' operations and changes in the economic environment might influence the total risk level faced by U.S. banking institutions in order to avoid the number of bank failures experienced during the recent recession. This study analyzes publicly traded banks in the U.S. from 1980 to 2010. Various accounting ratios and macroeconomic indicators are used as proxies for the effects of individual bank operations and changes in the economic environment. Total risk, as measured by the standard deviation of ROA and ROE, is regressed against the accounting ratios and economic indicators to identify the important sources of total risk.

Oral Presentation O9.3

**INTERNAL REVENUE CODE §6015: A VIEWPOINT ON THE SOCIAL INJUSTICES
OF THE UNITED STATES TAX LAW**

Caitlin Giudice, Amy Zumbahlen, and Darryl Brown*
Business Administration Department, Illinois Wesleyan University

Under US income tax laws, couples, whose marriages are recognized under federal law, may file a joint US income tax return as though the income of both spouses were earned by one spouse. This approach benefits both the government as well as the taxpayer. More often than not, returns of this type involve only one income earner. The other non-income earning spouse is generally unaware of the filing status, tax liability, and, many times, level of income of the joint tax return. Thus, it is likely that the non-income earning spouse signs the tax return (under penalties of perjury) even though she knows very little, especially as it pertains to the income and the related taxes, about the return. To the extent that there is a tax return deficiency, the Internal Revenue Service (“IRS”) may pursue collection against either spouse. This is the case whether the couple is separated, divorced, or even where one spouse is deceased. Internal Revenue Code §6015(f) provides innocent spouse relief in cases where the IRS has pursued collection against the innocent (non-income earning) spouse. This is based on the presumption that the taxpayer who filed the income tax return did so without fully informing their spouse about their financial position and implications on the income tax return. Thus, §6015(f) is designed to provide equitable relief by relieving the innocent spouse of the income tax liability because the innocent spouse does not have the wherewithal to pay the income tax. The present study examines 1) the complexities of the US tax law in this area, and 2) the difference between the intent of Congress and IRS policy toward and application of §6015(f). Our work shows that IRS policy toward and application of §6015(f) is inconsistent with Congressional intent and places an undue burden on innocent spouses, particularly in the case of battered or abandoned spouses. We conclude by discussing alternative approaches and applications of §6015(f), including tax policy proposals that provide the relief intended under §6015(f). Our study contributes to a long stream of literature that emphasizes the need and recognizes the ability to promote social justice through our income tax laws.

Oral Presentation O10.1

**BILINGUAL EDUCATION IN BLOOMINGTON-NORMAL:
THE HERE & NOW AND AFTER**

Kristen Gattuso and Christina Isabelli*
Hispanic Studies Department, Illinois Wesleyan University

This study examines the objectives of the existing bilingual education programs available for elementary students in Bloomington-Normal, Illinois. After exploring the options for young Spanish-speakers in this area, I plan to investigate the availability of resources for bilingual and English as a Second Language (ESL) teachers as well as the overall success of these programs. The latter will be determined by ISAT test scores of English language learners (ELLS) from the last three years after continuing on to junior high school. The participants of this study are bilingual educators who are members of the Bloomington-Normal Bilingual & ESL Group Listserv whose responses will be obtained through online surveys. One interview with a bilingual education teacher from Bloomington will also be used. The students' test results will be acquired through the Illinois Interactive Report Cards of the Bloomington-Normal junior high schools that illustrate the achievement in various subject areas and compare test results by groups based on ethnicity, income, and other factors. In interpreting this information, I hope to answer these questions: Are the resources available to bilingual education programs sufficient? What happens when the ELLs enter into the junior high schools without Spanish instruction? Are the objectives of bilingual education achieved? With a growing population of Hispanics nationally, it is pertinent to examine both the strong and weak points of these programs in order to reflect on how the education system will accommodate ELLs in the imminent future.

Oral Presentation O10.2

**LEXICAL AND MORPHOLOGICAL VARIATIONS OF VERBAL FORMS IN THE
SPANISH OF BILINGUAL YOUTH IN BLOOMINGTON-NORMAL, ILLINOIS**

Jason Roeschley and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

This study examines the lexical and morphological variations of verbal forms from standard Spanish among bilingual youth in the Bloomington-Normal community. The research questions are: What variations exist between the Spanish of Bloomington-Normal youth and standard Spanish? Are there any differences that are distinct from other U.S. Spanish varieties? Do variations differ depending on the speaker, or are there shared variations which have become a norm? The participants are 10-18 year old Spanish and English speaking students enrolled in an after school program. Data will be collected orally and audiotaped through a series of translation activities that focus on lexical and morphological aspects that are known to differ in U.S. Spanish from standard Spanish. The findings of this study will indicate how Spanish is developing in a less commonly studied, rural area in the U.S. and give insight to the probability of dialect formation distinct from standard Spanish or other U.S. Spanish varieties.

Oral Presentation O10.3

**MANAGING HISPANIC CLIENTELE; A CASE STUDY OF LANGUAGE
POLICY AT A COMPANY IN BLOOMINGTON, IL**

Jenna Rowland and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

There is a mutual relationship between a company and its clients that is maintained through its ability to communicate on a uniform level of understanding. This study focuses specifically on relationships maintained with Spanish-speaking clientele and the language policy efforts that a company based in Bloomington-Normal utilizes to best communicate with its Hispanic clients and how they manage their Hispanic relationships. The research questions include: What is the company's language policy? Do they have a program dedicated to the Hispanic population? If they do, why is it important to have such a program? And finally, what resources do they provide for their Hispanic clientele? The data will be collected primarily through interviews with two employees known to have connections with the Hispanic population. The conclusions from this study hope to examine the reasons for why the company provides programs for its Spanish clients and how language policy affects this company. The findings of this study provide a basic groundwork for an agent seeking to tap into the financial industry while maintaining and utilizing learned Spanish skills.

Oral Presentation O10.4

MEETING STUDENT'S NEEDS: A QUALITATIVE ANALYSIS OF SCHOOL COUNSELING SERVICES

Colin B. Schofield and Christina Isabelli*
Hispanic Studies Department, Illinois Wesleyan University

The purpose of this study is to gain further insight on counseling preferences of students in middle school and high school. Prior research has found variation among the extent to which students utilize school counseling services, as well as their desire to work with a counselor with a similar or different ethnicity. The current study seeks to contribute to this pool of knowledge, in part by examining what schools are doing to address the diverse needs of students, specifically Spanish speakers. School counselors in central and northern Illinois responded to open-ended interview questions regarding their counseling sessions, with a focus on language preferences among Hispanic students. The study also investigates how the dynamics of counseling sessions may be altered due to language use, and how student and counselor ethnicity may affect the frequency to which certain students use counseling services.

Oral Presentation O11.1

**AN EXPLORATION OF QUALITY OF LIFE IN TERMS OF FAMILY PLANNING FOR
LOWER INCOME URBAN WOMEN: PUNE, INDIA**

Gwenlyn Robinson and William Munro*
International Studies Department, Illinois Wesleyan University

Hypothesis: In Pune's lower economic strata a young wife's ability to effectively implement family planning will reflect her quality of life in terms of female empowerment. These women are most affected by literacy level, financial dependence, and family pressure.

Target Population: 20 wives of the lower economic strata between the ages of 18 and 30 connected with the Family Planning Association of India in Pune.

Methods: In-depth interview, field visits, and consultations with a FPIA gynecologist.

Analysis: The majority of participants had an "average" quality of life in terms of female empowerment. The women rated "average" for the categories of current age, age married, relationship with husband, talking to family about family planning, time spent outside the home, and number of meals. The only categories in which the women clearly rated above average were education and number of people per room. On the other hand in the categories of years married, formal sexual and HIV education, employment, proximity to in-laws, and defining of family planning the women rated quite poorly.

Oral Presentation O11.2

RURAL TO URBAN MIGRATION

Ryan Nielsen and Laila Garda*
Ferguson College, Pune, Maharashtra, India

The purpose of this research was to shed light on the migration patterns and practices of migrant workers from rural India now residing in urban India (city of Pune, in the state of Maharashtra). It is critical to understand how migration looks from the perspectives of the migrants if one wants to understand India today. This project was feasible due to the large numbers of migrant workers residing in Pune. The outer areas of Pune have a high concentration of migrant workers that are building everything from housing complexes to IT parks. The study focused on migrants living in a labor camp attached to the Mount 'n' Glory residential complex of the Sancheti Associates Pvt. Ltd. in Chandannagar, Pune, and the research was conducted through interviews. It was hypothesized that migrants would be happy about migrating if their individual standards of living have improved, but if they have not, they would also view their migration positively if they have been able to send money back home; if neither of the two were met, then they would view their migration negatively. This research discovered that migrants in this area came primarily from Chhattisgarh and Maharashtra. The main reason for migrating was to secure a job, and this was also the main expectation of migration. Migrants fell into two categories of migration: circular (migration meant to meet a specific need, such as paying for medical treatment) and rotational (migration meant to support the home and/or home economy). Rotational migrants sent more money back to the rural areas, with the average being Rs. 3458 monthly. Many of the migrants indicated that this money goes directly back into agriculture. While many migrants believe their lives are better as a result of their increased income, many also believe that their social network/social capital has greatly reduced as a result of their migration.

Oral Presentation O11.3

**A CULTURE OF PEACE INSIDE AND OUT:
THE CASE FOR COMBINED PEACE EDUCATION IN THE UNITED STATES**

Jessica L. Meyer and Marina Balina*
International Studies Department, Illinois Wesleyan University

The claim that by nuking a town Americans are defending their values, by sending troops to war they are protecting their freedoms, or by restricting “outsiders” they are preserving their nation all stem from a lack of international awareness or knowledge of events and cultures outside of their backyard. This distance to the international community causes Americans to fail to see every facet of an issue or dilemma and fall short of discussing all possible solutions. War, in the international area, and interpersonal violence, in the domestic arena, have become the norm and now drastic measures are needed to be considered in order to change this violence and intolerance. This should begin in the form of Peace Education. To the average American, Peace Education seems somewhat foreign. Many recognize the term when it comes to countries that have recently been torn apart by ethnic, political, and religious divisions as examples of where peace education is not only possible but necessary for the future. This type of peace education is “intractable region” education; however, there are two other types of peace education that are not for only those countries with internal civil war. “Tranquil region” education focuses on education *about* peace rather than *for* peace and “interethnic tension region” education addresses tension between majority and minorities where overt aggression is not seen on a wide scale yet injustice prevails.

This paper argues that in order to begin to address the issue of peace stability domestically and internationally, the United States needs to combine tranquil education and interethnic tension education starting with preschool and continuing through secondary school in order to foster a culture of international awareness, acceptance and therefore peace as well as address the societal problems of racial, ethnic, religious, and economic divisions created by American misunderstandings of one another. This combined program will educate Americans on the importance of learning and understanding issues in the international community to foster a better understanding of the consequences of American foreign policy, which in turn will create a better understanding of one another’s differences and demand peaceful resolutions to internal conflict.

Oral Presentation O11.4

**THE IMPORTANCE OF EDUCATION SYSTEMS IN POST-CONFLICT SETTINGS:
THE CASE OF BOSNIA-HERZEGOVINA (BIH)**

Emily Coles and William Munro* and Marina Balina*

International Studies Department, Illinois Wesleyan University

This paper reviews the education system in post-conflict BiH in order to understand the role that education plays in promoting a successful reconstruction process. It is argued that, if education is not emphasized as a key component of this process, then divisions will continue to prevent successful reconciliation, thus hindering the long-term success of reconstruction efforts. Since reconciliation is particularly important in post-ethnic conflict settings, the focus of the paper is on these kinds of settings. The paper begins by framing the post-conflict setting: how does one start to rebuild a society in the aftermath of war, which institutions are most important to reconstruct, who are the primary actors responsible for reconstruction? With this background, consideration is then given to the framework within which the education system can be placed in the post-conflict reconstruction phase: what role does education play in society, what are the benefits of education with respect to other sectors that must also be rebuilt so that the end result is a civil society? Lastly, those obstacles that are currently preventing educational system reform in BiH are identified and the impact of the associated absence of reconciliation in BiH is discussed. It is concluded that, unless education is emphasized early in the post-conflict setting, particularly if it is not considered to be a key component of long term development, then reconstruction efforts are more likely to fail leading to a perilous future for a society emerging from war.

Oral Presentation O12.1

EXPLANATORY DISCLOSURE BOOKLET STUDY

Anna Genchanok and Linda Kunce*

Psychology Department, Illinois Wesleyan University

The high prevalence of unemployment and underemployment within the Autism community is an issue that is only exacerbated by public misunderstanding of this complex condition. Many individuals with Autism work alongside coworkers and supervisors who are unknowledgeable about the disorder, which promotes the development of misconceptions regarding the individual's ability to function in the workplace. Despite frequent recommendations both for and against the use of explanatory Autism disclosure in work settings, there is a lack of empirical research directly assessing stakeholder perceptions of such disclosure. This small sample, exploratory study evaluates the implementation of an explanatory disclosure strategy (i.e., the use of an Autism Spectrum Disorder disclosure booklet) on the basis of gathered perceptions from the perspectives of three key stakeholders: the client/employee with ASD, the supported employment staff (e.g., case managers, job coaches), and non-ASD coworkers. Research was conducted in collaboration with the supported employment services office of United Cerebral Palsy (UCP). Workers with ASD were invited to develop individualized disclosure booklets which were shared with and evaluated by the key stakeholder groups. Results provide a quantitative and qualitative description of perceived benefits and risks of such disclosure.

Oral Presentation O12.2

**EVALUATING A SENSORIMOTOR INTERVENTION IN CHILDREN WHO HAVE
EXPERIENCED COMPLEX TRAUMA: A PILOT STUDY**

Lauren Hansen and Robert Lusk*

Psychology Department, Illinois Wesleyan University

The purpose of the study was to evaluate the effectiveness of a sensorimotor intervention on children who have experienced complex trauma. Principles from the Neurosequential Model of Therapeutics as well as a sensory integration intervention were incorporated into activity groups; these interventions focused on increasing attunement while stimulating the brain. The intervention took place at the Residential Treatment Center (RTC) of The Baby Fold in Normal, Illinois. The RTC is an inpatient treatment center for children with severe emotional and behavioral problems, which are typically the result of early, chronic traumatic experiences. We hypothesized a decrease in the frequency of problematic behaviors and an increase in positive, pro-social behaviors for children receiving the treatment compared to a control group that did not receive the specialized activity groups. As predicted, our results indicated a significant decrease in some problematic behaviors in the treatment group, but there was no change in positive behaviors.

Oral Presentation O12.3

**A WEB OF CONNECTIONS: THE ROLE OF SOCIAL CAPITAL AND TRUST IN THE
FORMATION OF VIRTUAL ORGANIZATIONS**

Paige Maynard and Meghan Burke*
Sociology Department, Illinois Wesleyan University

Many community based agencies engage in collaboration in order to solve community problems no one organization can accomplish on its own. One such form of collaboration is the virtual organization. A virtual organization is an organization that relies on multi-party, co-operative agreements between structural, temporal, and sometimes geographic boundaries. Looking narrowly at virtual organizations on the community level is one approach which allows for better understanding of why and how community based collaboration takes place. The objective of this research is to examine the extent to which virtual organizations are utilized by community agencies while simultaneously understanding the role both social capital and trust play in the formation of these organizations. By surveying human service agencies in Bloomington-Normal, IL, both qualitative and quantitative data was collected on virtual organizations that exist in this community. Both social capital and trust appear to be two of the driving forces in the formation of virtual organizations across social service agencies. This research seeks to better understand virtual organizations as well as the associated successes and failures.

Oral Presentation O12.4

STRESS, SPIRITUALITY, AND WELLNESS: CHANGING THE STATE OF WELLBEING WITHIN A PUBLIC HEALTH PARADIGM, BRINGING INTEGRATIVE THERAPIES TO THE AMERICAN BIOMEDICAL INDUSTRY

Kristin B. Robinson and Georganne Rundblad*
Sociology Department, Illinois Wesleyan University

The 18th Century period of Enlightenment marked an era of scientific advancements aligned with a competitive notion amongst phenomenological European philosophers on a quest to explain the observable reality. The paradigmatic ideologies for centuries prior in Western civilization perceived mankind and the physical realm through a theological scope, attributing abnormal manifests as being a product of God or the act of an evil spirit. The birth of modern science transformed the Western concepts of knowledge, and redefined the gaze with which reality and history were interpreted. The public health paradigm seen in 18th century European society ascribed illness, hysteria, and plaguing epidemics from within a theological framework, until the unorganized language of significant observations of disease and symptoms evolved as well.

The practice of medicine in the form of clinical treatment developed only after, during the forefront of the Enlightenment, a shift in the roles of the physician and patient in society fostered a new domain of observation and interpretation. The new science commenced an anatomical gaze of the human body, ultimately restructuring its properties via observable compartments and layers of tissue and organ. Following progressive transitions of arguable maltreatment of the hysteric and clinically insane, the science of anatomical structure and observable disease became Western culture's clinic. In the pursuit of understanding life through the complexities of the human body, the medium of disease in death became the finitude of clinical medicine. The initial gaze of clinical medicine and observation focuses on the anatomical state of the human body, without reverence to an overall state wellness.

The compartmentalized anatomy and physiology born from the clinical gaze of 18th Century Western Europe remains at the core of the American biomedical industry as we continue to treat our most arresting incidences of disease in modern society symptomatically, responding to the observable disorders with pharmaceutical prescriptions, invasive procedures, and fragmented history of patient sanctions. The United States biomedical industry continues to thrive within its Health Maintenance Organization-Pharmaceutical Corporation-Consumption driven state, while the general public adheres to its misconceptions of health and healthcare. A brief historical, political analysis of the physical, psychological, social, spiritual, intellectual, and environmental sciences from an Eastern philosophical perspective reveals a defining contrast in existential creeds compared to Western culture, or how the meaning of human life is perceived.

Thus, the difference in concepts of health rests at the core of the definition of wellbeing. While American culture is centered on capitalism, the symptomatic consumption high cost, externally regulated treatments for overbearing health ailments in society, and an overt disregard for the all-encompassing dimensions of health and wellness, most Eastern culture practices conceive the spiritual dimension of wellbeing to be at the core of human existence. Contemporary, continuing public health educational courses in the United States recognize all dimensions of health and clearly abstract the activities an individual can perform in order to achieve optimum wellness, such as diet, exercise, lowered stress levels, proper sleep, and health lifestyle choices. After a brief survey examining lifestyle habits, academic performance, stress level, and incidence of self-reported mental illness of a small student population at Illinois Wesleyan University, and an assuming empirical generalization, it is safe to say that our society has a severe misunderstanding about the spiritual dimension of health, how to maintain a healthy lifestyle, and how to cope with stress. Emerging integrative therapies epitomized by the National Center for Complementary and Alternative Medicine (NCCAM), such as Ayurveda, homeopathy, and energy therapies, are becoming increasingly trendy in popular society, but remain to be institutionalized.

POSTER SESSION A

9:00 - 10:00 a.m.

Odd-Numbered Posters

POSTER SESSION B

2:35 – 3:35 p.m.

Even-Numbered Posters

EDUCATIONAL STUDIES POSTERS - ES

9:00 – 10:00 a.m.

Lower Level – Ames Library

Note: Student's name is underlined, faculty advisor designated with *

During each poster session the author will be present to discuss her or his research with conference attendees, and answer questions.

Please remove your posters from CNS Atrium by 4:00 p.m.

Poster Presentation P2

**EXPERIMENTAL MANIPULATION OF MATERNAL INVESTMENT AND
EFFECTS ON JUVENILE VIABILITY AND SIZE IN *PHYSA ACUTA***

Lauren Awdziejczyk and William Jaeckle*
Biology Department, Illinois Wesleyan University

In oviparous reproduction there is a proposed relationship between maternal resources allocated to each egg and offspring viability. This balance between producing a viable next generation without over-expending personal resources has been previously studied in amphibians and sea urchin species. The freshwater snail *Physa acuta* continuously lays clutches of 5 to 50 eggs every 12 to 24 hours. Comparisons of egg capsules (n=375) laid by four individuals over the span of one week revealed that there was little variation in every capsule volume and clutch size among eggs laid by any individual. There were differences between capsule and clutch size among individuals, however I was unable to detect correlations between individual capsular volume, or total capsular volume produced over a defined time frame, and maternal size. Differences in capsule volume predict differences in maternal investment. In order to evaluate the effects of the observed differences in maternal investment on offspring viability and size I removed different volumes of intracapsular fluid from selected egg capsules and observed the effects on the resulting juvenile. If there was no trade off between parental investment and juvenile viability, then we would expect mothers to contribute to each egg the minimum amount of nutrients required for the juvenile to survive and hatch. In *Physa acuta* capsular volume could be decreased to less than 40% of its original size and still result in viable juvenile. These manipulated hatchlings were on average smaller than their unaltered siblings. This suggests that there is an evolutionary fitness benefit to producing offspring larger than the minimum size necessary for survival.

Poster Presentation P4

**AN ASSESSMENT PLAN OF THE SOCIOLOGY PROGRAM AT
ILLINOIS WESLEYAN UNIVERSITY**

Ashley Beadle and James Sikora*
Sociology Department, Illinois Wesleyan University

In preparation for a North Central Accreditation campus visit in 2012, the Department of Sociology and Anthropology updated their student learning outcomes for majors and program goals and objectives for both disciplines. One part of the assessment centered on the faculty's evidence regarding their effectiveness as teachers in meeting program goals-objectives, and another part addressed present and alumni students' perceptions of their learning outcomes in their majors and general education. Accomplishing that assessment of the programs and student learning outcomes went through a number of stages, each examining a facet of the programs since 2002, the previous University accreditation visit. The stages resulted in:

1. Reviewing other national liberal arts universities' present programs that assess their departments' goals-objectives and majors' student learning outcomes.
2. Updating IWU's faculty goals and objectives for the Sociology and Anthropology programs.
3. Gathering the Sociology program's syllabi to compare how current course objectives and assignments align with each major's goals, objectives, and student learning outcomes.
4. Surveying current and past Sociology majors and minors (alumni since 2000) regarding their perceptions of the department's general programs, their learning as majors, and their learning in a liberal arts setting.

Findings from the above data and information gained at the above stages will result in modifications to the current programs and student learning for majors. Regular reviews of the assessment of student learning outcomes and effective teaching will continue into the future.

Poster Presentation P5

**EXAMINING THE EFFECTS OF OSTRACISM ON NEURAL AND BEHAVIORAL
INDICES OF COGNITIVE SELF-REGULATION**

Aaron Ball and Jason Themanson*

Psychology Department, Illinois Wesleyan University

The impact of ostracism, or social exclusion, on a target individual produces a number of negative consequences, including deficits in cognitive functioning related to self-regulation and general cognition. While such effects have been acknowledged, there is a lack of literature examining these effects in relation to the monitoring of one's actions during task performance. Accordingly, the current study utilized event-related brain potentials (ERPs) to investigate the neural and behavioral consequences of ostracism, created through the use of the Cyberball paradigm, in relation to self-regulatory action monitoring processes implemented during the execution of a modified flanker task. Results indicated that participants who were excluded during the Cyberball paradigm showed decreases in both the error-related negativity (ERN), a neural index of self-regulation following performance errors, and post-error response accuracy, a behavioral indicator of the ability to correct behavior following a mistake, following exclusion. Conversely, participants who were not excluded during Cyberball evidenced greater ERN amplitude and improved post-error response accuracy following the Cyberball interaction. These findings suggest that action monitoring processes, including the ability to effectively detect and correct performance errors during task executions, are compromised following the experience of being excluded from a social interaction.

Poster Presentation P6

**WHAT'S IN A NAME? THE FRENCH CHAMPAGNE INDUSTRY
AND THE BATTLE FOR AOC**

Hannah Becker and Scott Sheridan*

French and Francophone Studies, Illinois Wesleyan University

Champagne is considered a symbol of luxury and celebration, but it is also regarded as distinctly French. While there are non-French champagnes, the most well known and widely recognized are French. This recognition can be attributed to the government's establishment of *Appellation d'origine contrôlée* (AOC) (controlled designation of origin). The conflictual past of the French champagne industry ultimately influenced the government to support AOC, which proclaimed the Champagne region as the only supplier and producer of champagne in France, and later in the European Union. This presentation will look at how the champagne industry's complex past led to it becoming known around the world as "French," and why this was and still remains economically significant to this country.

Poster Presentation P8

**FLUORESCENT STUDIES OF PEPTIDIC HEMOGLOBIN
BINDING LIGANDS**

Chris Brackett and Brian Brennan*

Chemistry Department, Illinois Wesleyan University

Sickle cell disease is a disorder that affects red blood cells, causing them to form the characteristic “sickle-shape”. My research is focused on studying the interactions between peptidic hemoglobin binding ligands and sickle cell hemoglobin using fluorescence techniques. By better understanding the way in which these ligands interact with the protein surface, we are put in a position to design novel therapeutic agents. I have successfully synthesized ligands, labeled them with a fluorescent molecule, and have begun investigating the ligand-hemoglobin interactions.

Poster Presentation P9

A NEW SPECIES OF THE *PRISTIMANTIS ORESTES* GROUP (AMPHIBIA: ANURA: STRABOMANTIDAE) FROM NORTHERN PERU (RÍO ABISEO NATIONAL PARK)

Alan Brus and Edgar Lehr*

Biology Department, Illinois Wesleyan University

In South America frogs of the genus *Pristimantis* are most diverse and can be found from lowland forests to elevations of about 4000 m in the Andes. The 440 known species of *Pristimantis* belong to 16 species groups. One of them is the *Pristimantis orestes* Group whose 14 members inhabit paramo and upper montane forests in southern Ecuador (3 species) and Peru (11). Species of the *orestes* Group are characterized by having snout-vent lengths ranging from 18.0 to 29.4 mm, short, robust bodies, relatively short snouts, narrow digital discs, areolate ventral skin and some species have variously colored pale spots in the groin. Herein, we describe a new, diminutive species of *Pristimantis* from the Andes of northern Peru that we assign to the *Pristimantis orestes* Group. The new species has a snout-vent length of 18.8–29.1 mm (n = 49) in adult females, and 14.4–21.0 mm (n = 30) in adult males. It differs from all other members of the *orestes* Group in having prominent scapular tubercles.

Poster Presentation P10

**COMPARISON OF EGGSHELL POROSITY AND ESTIMATED GAS FLUX
BETWEEN THE BROWN-HEADED COWBIRD (*MOLOTHRUS ATER*) AND ITS
HOSTS: THE DICKCISSEL (*SPIZA AMERICANA*) AND THE RED-WINGED
BLACKBIRD (*AGELAIUS PHOENICEUS*)**

Brittany Childs, Miranda Kiefer, and Given Harper* and William Jaeckle*
Biology Department, Illinois Wesleyan University

The Brown-headed Cowbird is a brood parasitic icterid that lays eggs in nests of other species, including the Dickcissel and a non-parasitic icterid, the Red-winged Blackbird. Cowbird eggs reportedly hatch sooner than equivalently-sized host eggs, providing their hatchlings a potential competitive advantage over host offspring. We tested the hypothesis that the apparent accelerated development of cowbird offspring is a result of differences in the physical character of the eggshell and that those differences increase the fluxes of respiratory gasses to and from the developing chick. Cowbird egg size is intermediate between those of the larger Red-winged Blackbird and the smaller Dickcissel, but cowbird eggshell thickness was significantly greater than the eggshells of either potential host ($p < 0.001$). The number of pores per egg was similar between cowbirds and Dickcissels, but the total pore area per egg was significantly greater in cowbirds ($p < 0.001$). Red-winged Blackbird eggs, in contrast, had a greater number of pores than cowbird eggs ($p < 0.001$), but cowbird egg pore area was 1.9x larger ($p = 0.016$). Estimates of eggshell conductance (G_{H_2O}) revealed that cowbird eggs were more conductive than Dickcissel eggs ($p < 0.001$), but not different than the eggs of Red-winged Blackbirds ($p = 0.064$). When conductance was normalized to published values of egg weight, cowbird eggs had a higher weight-specific conductance than Dickcissel ($p < 0.001$) or Red-winged Blackbird eggs ($p = 0.004$). Differences in eggshell characteristics predicatively influence gas fluxes across the eggshell and potentially explain variation in incubation periods among species.

Poster Presentation P11

**A STUDY OF THE MAINTENANCE OF CONVERSATION IN
STUDENTS WITH AUTISM**

Jessica Clemens and Linde Kunce*

Psychology Department, Illinois Wesleyan University

Individuals diagnosed with a disorder on the autism spectrum often experience difficulties in verbally expressing themselves. Although there is some data that supports that these individuals lack communication skills, there is not a great deal of data that explores specific details and areas that are affected the most. This presentation will present statistics on the responses given when those with autism spectrum disorders (ASD) are prompted to maintain a conversation. This study follows two special education classes at the local high school that follow the same curriculum and have the same assignments. The findings of this study reveal the great amount of variability in the skills of these students despite being held to the same standards in the classroom and provide baseline data on conversation maintenance in ASD students for future researchers.

Poster Presentation P12

THE PERCEPTION OF BILINGUALISM IN THE UNITED STATES

Rebeca Cruz and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

This study evaluates what it means to be a Spanish-English bilingual speaker in the United States and the language shift that is occurring from Spanish to English among native and first generation Spanish-speakers. The questions raised are: What does it mean to be bilingual? Through what process did these bilinguals acquire the second language as well as maintained their heritage language? What may explain the wide spectrum of why some Spanish speakers in the US are mainly monolinguals in Spanish or retain a low level of Spanish? The data will be collected using oral interviews and electronic questionnaires from participants between the ages of 18 and 28 that are from a Hispanic community in a metropolitan area in the Midwest. With increased globalization, there is a greater need for individuals to acquire a second language but first generation Spanish-speakers may be missing out on this opportunity due to the consequences of bilingual education goals of the US educational system. By defining what it means to be bilingual, I hope to provide insight on how bilingual individuals view themselves in our North American society.

Poster Presentation P13

COMPARISON OF ABERRATION CORRECTION METHODOLOGIES

Patrick Dahl, Carl Mueller, Nathaniel Wolanyk, Evan Baker and Gabriel Spalding*
Physics Department, Illinois Wesleyan University

We began the term by re-designing a complex optical system, so as to minimize the number of elements required, while at the same time adding a pair of acousto-optic deflectors (AODs) to the existing system, which included a Spatial Light Modulator (SLM) and a research-grade fluorescence microscope. For every element added to the optical path there is some amount of insertion loss (i.e., a reduction in the transmitted intensity). So, in part, the reduction in the number of optical elements was aimed at reducing the integrated insertion loss. Also of great significance, for our application, is the need to reduce the overall aberration present in the system. Our goals for the immediate future are to assess the effectiveness of (and trade-offs associated with) several independent techniques for aberration correction, including one of our own design. We have worked together to develop and incorporate original code for manipulation of the active elements in this system, as will be demonstrated in the talk.

Poster Presentation P14

**LEARNING ENGLISH AS A SECOND LANGUAGE: BEST PRACTICES
FOR ADULT LATINO LEARNERS**

Kirsten Fredrickson and Carolyn Nadeau*
Hispanic Studies Department, Illinois Wesleyan University

Over the past three months I have spent many hours as an intern in the Hispanic Outreach Program at Western Avenue Community Center, where I have witnessed the struggles of Hispanic immigrants who do not know the English language. By observing English classes and speaking to many native Spanish speakers, I have been able to see the types of English needs of Hispanic speakers and effective pedagogical strategies to meet those needs. While it is important for children to learn grammatical rules and complete English, many adults first need to focus on learning essential English phrases for the work place and daily life. By observing the types of difficulties many Hispanic adults face, and different teaching methods that can be used to improve their English abilities, I have been able to draw conclusions about the best way to teach English to adults in the Hispanic community. This bilingual poster presentation, will exemplify some of these "best practices" in adult English classes for native Spanish speakers.

Poster Presentation P15

**DECLINE AND DISPARITY: THE CASE OF SPANISH LANGUAGE
NEWSPAPERS IN THE U.S.**

Brianna Gidday and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

This study explores the differences in content, availability and bias found between English and Spanish language newspapers nationally with an added emphasis on how *The Pantagraph* and *La Raza*, the prominent English and Spanish newspapers available in Bloomington, Illinois, compare with these findings. The overall history and decline of print media is investigated alongside the social and linguistic consequences of this phenomenon, including acculturation, language maintenance, and language shift. These outcomes broaden the knowledge gap, especially in health and political issues, between the majority and Hispanic minority populations. From this study, possible remedies for the decline and disparity characteristics of Spanish language newspapers will be unveiled.

Poster Presentation P16

HEALTHCARE FOR HISPANICS IN THE UNITED STATES

Sean Gower and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

Many Hispanic adults in the U.S. do not receive adequate healthcare. This study seeks to explore the causes of this phenomenon: is it due to a language or educational barrier, the cost prohibitive nature of proper healthcare, undocumented status, or myths and false rumors that have spread throughout the Hispanic community regarding health insurance? Data will be collected and analyzed from the Pew Hispanic Center and from the 2009 U.S. Census, which will contain information regarding a variety of factors that could possibly explain the underlying reasons why Hispanics do not receive adequate healthcare. These factors could include English language proficiency, income levels, education levels, and differences in access to healthcare among different ethnicities. The study will divide ethnicities into the following categories (in order of most populous to least populous): Mexican, Puerto Rican, Cuban, Dominican, Central American, and South American. The study will also attempt to interpret and present Hispanics' perceptions of health insurance in the United States through an interview with a leader of the Hispanic community in Bloomington-Normal. The study hopes to find that inadequate healthcare is caused by a problem that has a viable solution, and that the recent federal healthcare reform legislation will offer Hispanics greater access to health insurance and healthcare. Due to the demographic trends and political climate of the U.S., providing possible solutions to this issue is critical.

Poster Presentation P17

**A NEW SPECIES OF *PRISTIMANTIS* (AMPHIBIA: ANURA: STRABOMANTIDAE)
FROM THE RÍO ABISEO NATIONAL PARK, PERU**

Cindy Gregory and Edgar Lehr*

Biology Department, Illinois Wesleyan University

Frogs of the genus *Pristimantis* occur in Central America, the Lesser Antilles, and northwestern South America. They reproduce by terrestrial-eggs without a free-swimming tadpole stage. *Pristimantis* are most diverse in South America and can be found from lowland forests to elevations of about 4000 m in the Andes. The genus comprises 440 species, of which 120 are currently known from Peru. Herein, we describe a new species of *Pristimantis* from the Río Abiseo National Park in the Andes of northern Peru. The new species has a snout-vent length of 24.9–34.2 mm ($n = 7$) in adult females, and 15.3–23.5 mm ($n = 32$) in adult males. It differs from other species of *Pristimantis* in having the snout with a broad, slightly upwards curved, fleshy process. It is most similar to *P. phoxocephalus* which has the snout with a vertical fleshy keel, but differs from it by a combination of morphological characters.

Poster Presentation P18

**AN ENZYME ASSAY OF THE BCHC-ENCODED ENZYME
2-DESACETYL-2-HYDROXYETHYL BACTERIOCHLOROPHYLLIDE
A DEHYDROGENASE**

Ronald Grider and David Bollivar*
Biology Department, Illinois Wesleyan University

In photosynthetic bacteria, bacteriochlorophyll fulfills a role analogous to that of chlorophyll in plants. Namely, it is involved in capturing light energy in order to initiate photosynthesis. The biosynthesis of this important pigment in photosynthetic bacteria involves a long multi-step pathway with many intermediates. Much of the previous work in determining the specific enzymes that catalyze each transformation step of the pathway was done via genetic mutational analysis. Consequently, this approach was also used to identify the *bchC* locus as necessary for the transformation of 2-desacetyl-2-hydroxyethyl bacteriochlorophyllide a into bacteriochlorophyllide. Since the sequence of *bchC* is homologous to that of a Zn-dependent alcohol dehydrogenase, this locus has been proposed to encode an enzyme with the name 2-desacetyl-2-hydroxyethyl bacteriochlorophyllide a dehydrogenase. This study sought to express the proposed enzyme encoded by the *bchC* gene for the first time and test via an enzyme assay – with the *bchC* enzyme's substrate, 2-desacetyl-2-hydroxyethyl bacteriochlorophyllide – whether it is sufficient for the transformation step of interest. Assuming that it is sufficient or that the conditions for a successful reaction are discovered, we ultimately hope to characterize the kinetic parameters of the transformation *in vitro*.

Poster Presentation P19

**WINTER ABUNDANCE OF RED-TAILED HAWKS (*BUTEO JAMAICENSIS*) AND
AMERICAN KESTRELS (*FALCO SPARVERIUS*) IN HUMAN-ALTERED LANDSCAPES IN
NORTHEASTERN AND CENTRAL ILLINOIS**

Anna Groves¹, Vic Berardi², Paul Sweet³, Janice Sweet³, Angelo Capparella⁴, Gretchen Knapp⁴,
and Given Harper*⁵

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⁵Department of Biology, Illinois Wesleyan University

Though Red-tailed Hawks and American Kestrels are among the most common raptors found across North America, no study has examined their winter abundance in Illinois since 1967. This study investigated their winter abundance using five years (2004-05 through 2008-09) of winter (December-March) automobile survey results (201 surveys) in northeastern and central Illinois using a standardized survey technique. In northeastern Illinois, red-tails were most abundant in 2004-05 (145.6 median/1000 km) and least abundant in 2006-07 (63.8); the highest number was observed in March and the lowest in February. In central Illinois, red-tails were most abundant in 2008-09 (228.3 median/1000 km) and least abundant in 2004-05 (112.4); the highest number was observed in February and the lowest in December. There were no significant effects of year (northeast, $P=0.14$; central, $P=0.44$) or month (northeast, $P=0.58$; central, $P=0.51$) on red-tail abundance in either region. Adults were observed 9.0 times more frequently than immatures. In northeast Illinois, kestrels were most abundant in 2006-07 (38.8 median/1000 km) and least abundant in 2004-05 (15.2); abundance was highest in January and lowest in March. In central Illinois, kestrels were most abundant in 2005-06 (88.8 median/1000 km) and least abundant in 2004-05 (35.5); abundance was highest in February and lowest in January. There was no significant effect of month (northeast, $P=0.87$; central, $P=0.40$) on kestrel abundance, or of year ($P=0.21$) in northeast Illinois. In contrast, there was a significant effect of year ($P=0.003$) on kestrel abundance in central Illinois. In all surveys males were observed 1.7 times more frequently than females

Poster Presentation P20

**ATTITUDES TOWARDS BILINGUAL EDUCATION: A STUDY OF EDUCATORS
AND UNIVERSITY STUDENTS IN BLOOMINGTON-NORMAL, IL**

Kati Hinshaw and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

This study examines the differences in attitudes of teachers and university students towards bilingual education, with an emphasis on how each group defines bilingual education and what role they believe bilingual education should play. This study seeks to answer the following three questions: (a) How is bilingual education defined by different groups? (b) What is the envisioned purpose of bilingual education?, and (c) How important is bilingual education within our school systems? The participants will consist of primary and secondary school bilingual education teachers and university students. Data will be gathered via a written questionnaire and interviews to determine general attitudes towards bilingual education. This information will be important in determining the level of support and understanding the people of Bloomington-Normal have towards the needs of the Spanish speakers in the community. The conclusions from this study may provide insight into the factors that affect the education of Spanish speakers.

Poster Presentation P21

THE ENGLISH-ONLY MOVEMENT AND THE LINGUISTIC FUTURE OF THE UNITED STATES

Erin Howes and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

This descriptive study investigates the opinions of proposed English-Only legislation and how the opinions of the current college generation will affect the future of this country's language laws. The English-Only Movement, also known as the Official English movement, refers to a political movement to establish the English language as the only official language in the United States and in government operations. The data will be collected from university students via an online questionnaire focusing on the opinions of the use of English as the country's legal language versus the presence of Spanish. Investigative questions regarding different demographics and background information will be used to determine if there is a collective consciousness or pattern within certain communities or groups, such as common birthplace, academic major, or specific ethnic group. Understanding a sampling of students' opinions on this topic is important since they will have the responsibility regarding the linguistic and educational future of the Spanish-speaking population.

Poster Presentation P22

**EFFECTS OF GENDER BASED DESCRIPTORS ON A DEITY AND A
CORRESPONDING RELIGIOUS GROUP**

Hannah Jones and Jennifer Daniels*

Psychology Department, Illinois Wesleyan University

Group membership is highly influential in the structure of one's personal and social identities, but the values of such a group have the potential to conflict with other aspects of one's personal identity. One example might be one's chosen religious group, which can exert a great deal of influence over personal thoughts and beliefs, but can also offer points of conflict between group and personal level convictions. Religion has been critiqued by some as being predominantly patriarchal, eliciting and reinforcing gender stereotypes and sexism. These stereotypes, and potentially prejudice, can exist within the religious group's belief structure, whether spoken or tacitly understood. This is often cited within the Abrahamic religions, e.g., these groups maintain that their God does not claim biological sex nor gender, but their texts display predominantly masculine imagery as well as the convention to refer to their God as "He". The purpose of the present study is to determine whether individuals would be willing to consider broadening their view of their deity to include feminine imagery and the option of referring to their God as "She." In this study, participants were divided into six conditions and provided with a description of a hypothetical religious group and the deity around which the group is centered, each describing a deity that differed in sex pronouns and gender stereotyped traits. Data was analyzed to evaluate the impact of both gendered pronoun labels and traits used to a deity in individuals' preferences, as well as to determine which combination of these attributes elicits the most favorable response across participant groups. Statistical results and implications of this research will be discussed.

Poster Presentation P23

**CYBEROSTRACISM AND SOCIAL MONITORING: SOCIAL ANXIETY'S
AFFECTS ON REACTIONS TO EXCLUSION AND INCLUSION ONLINE**

Claire Karlen and Jennifer Daniels*

Psychology Department, Illinois Wesleyan University

Previous research has shown that ostracism –the equivalence of exclusion in a social situation – improves social monitoring abilities – a natural practice by individuals that serves to gather information through social cues about what is happening in their social worlds (Pickett, Gardner, & Knowles, 2004). Current knowledge on social anxiety, defined as a chronic fear of social situations that put one in the position of evaluation by others, describes hypersensitivity in those individuals in cases of social monitoring others (Barlow, 2002; Craske, 1999). The current study investigated how those two constructs interacted in a cyberostracism paradigm. After measuring their social anxiety levels, participants were placed in either an exclusion or inclusion situation modeled on the social networking website Facebook, a medium through which rejection is not only easily but also commonly executed. Following the manipulation, participants were tested on their social monitoring abilities, their mood, and their feelings of satisfaction in regards to Williams' four fundamental needs – self-esteem, control, belonging, and meaningful existence. We hypothesized that individuals in the exclusion situation, in contrast to those in the inclusion situation, would show higher levels of social monitoring ability, lower mood, and fewer feelings of satisfaction in relation to Williams' needs. We also predicted that individuals who were higher in social anxiety would show lower levels of social monitoring ability. Finally, we hypothesized that individuals both high in social anxiety and placed into the exclusion situation would show the lowest levels of social monitoring ability. Results showed that while participants with higher levels of social anxiety had stronger psychological reactions to be ostracized, they did not then show decreased social monitoring abilities. However, participants who were high in social anxiety and also in the exclusion situation made different kinds of social monitoring errors based on the affect and intensity of the social cue.

Poster Presentation P24

THE EVOLUTION OF SOCIAL PAIN: UNDERSTANDING THE NEURAL NETWORK OF SOCIAL OSTRACISM THROUGH ELECTROENCEPHALOGRAPH WAVES

Daniel Kern and Joseph Williams*

Psychology Department, Illinois Wesleyan University

The lack of belonging or frequent exposure to social ostracism has maladaptive psychological and physical consequences. However, little is known about the mechanisms underlying the neural processes of social ostracism. Previously, Williams (2009) showed a decrease in theta power in the frontal lobe when female participants were ostracized in a virtual chat-room. Using male and female Illinois Wesleyan college students, this study manipulated two powerful social cues (biological sex and attractiveness level) to determine their effect on prefrontal brain activity in response to social ostracism in a virtual chat-room environment. Using EEG technology, frontal theta power (4-8Hz) was measured using three cortical electrodes (the F3, F4, and Fz sites). Using a similar procedure to Williams (2009), social ostracism was elicited using a well-established chat-room paradigm that involved 4 phases, in which participants talked to research confederates acting as students from Illinois State and University of Illinois. In the introduction, inclusion, and re-inclusion phases, participants were actively involved in the conversation, in contrast to being actively ignored during the exclusionary phase. During the exclusionary phase of the experiment, we hypothesize a significant decrease in theta power across gender and attractiveness levels in the frontal lobe.

Poster Presentation P25

**NEURAL ACTIVITY DURING SOCIAL EXCLUSION:
AN EXPLORATORY EXAMINATION**

Stephanie M. Khatcherian and Jason Themanson*
Psychology Department, Illinois Wesleyan University

This study examined the relation between social exclusion and event-related brain potential (ERP) activity. ERPs were collected while participants completed three blocks of the Cyberball Paradigm during which they experienced situations of social inclusion, exclusion, and re-inclusion. This well-established paradigm mimics actual social behavior experienced in real-world situations. Results indicated that an N2 component was present when participants were not included in the interaction regardless of the larger social context (i.e. inclusion, exclusion), suggesting neural indicators of conflict are sensitive to the moment-to-moment changes in social interaction. Further, results showed that a P3 component was present for all types of throws between participants, but was reduced for throws excluding the participants. However, in the exclusion block, the P3 during exclusionary throws was larger in amplitude than in both the inclusion and re-inclusion blocks, suggesting greater attention was given to instances of exclusion in a larger exclusionary context. These combined findings show that social exclusion is a process that may best be examined both in terms of momentary changes evidenced during social interaction as well as the larger context of the social interaction.

Poster Presentation P26

DELUSIONS OF GRANDEUR AND FRANCE'S GRANDES ÉCOLES: "BIG TIME" PRESTIGE OR "BIG TIME" ELITISM?

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French and Francophone Studies, Illinois Wesleyan University

The Grandes Écoles, or "great schools," are highly selective institutions in France that guarantee their students a top position in fields such as business and engineering. Historically, such schools were established to foster the elite and maintain its influence, and they remain separated from France's universities by preparatory classes and competitive exams. Today, over sixty percent of directors and leading executives of one hundred of the largest French companies attended the Grandes Écoles, and graduate success rates remain high. However, the schools are often criticized since they continue to pursue their foremost goal of preserving the power of France's upper class. This presentation will examine the impact of the schools and their graduate's innovative businesses as well as France's response to their divided school system. The Grandes Écoles will also be compared to the U.S.'s universities and viewed from the perspectives of other countries. These institutions hold a highly valued reputation, but if their elitist aims persist there may exist future feelings of resentment.

Poster Presentation P27

INCIDENCE OF LARVAL CLONING IN THE SEA URCHINS *ARBACIA PUNCTULATA* AND *LYTECHINUS VARIEGATUS*

Lauren Knaack and William Jaeckle*
Biology Department, Illinois Wesleyan University

Cloning is the development of a new, genetically identical individual from a pre-existing organism. Cloning by free-living developmental forms called larvae has been observed in 4 of the 6 taxonomic classes within phylum Echinodermata. An earlier report by Vaughn and Strathmann (2008) indicated the rate of cloning by pluteus larvae of *Dendraster excentricus* is influenced by the surrounding environment. We tested this hypothesis by monitoring the incidence and frequency of cloning of larvae of the sea urchins *Arbacia punctulata* and *Lytechinus variegatus* in response to different sources and abundances of particulate foods. Groups of seven plutei were reared transferred into each of nine different shot glasses containing 40 mL 36 ‰ filtered seawater. Commercial food particles (EZ-larva®), or algal cells, were added to produce 3 food concentrations (low, medium, and high). Every two days the plutei were counted, fed, and transferred to a glass with filtered seawater and food. They were counted to see if any clones had been released and if any plutei were lost or died. Only two clonally produced larvae were produced by larvae of *L. variegatus*; *A. punctulata* larvae did not clone. Overall survivorship was directly related to abundance of food and ranged from 18% to 80%. The observed low rates of cloning ($\approx 2\%$ of cultured larvae) imply that cloning (1) is not a common developmental feature among larvae of sea urchins or (2) our environmental conditions were inappropriate to induce cloning. Cloning rates may differ in nature depending upon numerous factors not studied in these experiments such as water temperature, salinity, or concentration of larvae in culture.

Poster Presentation P28

ROTATIONAL PROPERTIES OF TROJAN ASTEROID 5209

Daniel LaRocca and Linda French*

Physics Department, Illinois Wesleyan University

We present VR photometric observations of several Trojan asteroids and of asteroid 5209 1989 CW1. Trojan Asteroids are found in the L4 and L5 stable Lagrange points of Jupiter's orbit. These asteroids are farther away and generally more dim than Main Belt asteroids and have received less attention from observers in the past. By plotting the lightcurve of the asteroid, we were able to determine the rotation period and the lightcurve amplitude. The goal of this research is to eventually understand the collision history of the Trojan asteroids and to compare the asteroids to those in the Main Belt. Observations were made using the 31-inch telescope at Lowell Observatory in Flagstaff, AZ during the months of January and February of 2011. Our results will be compared with previous work by other authors.

Figure 1

Poster Presentation P30

DETERMINANTS OF HOUSING PRICE IN CHINA

Tian Mao and Michael Seeborg*

Economics Department, Illinois Wesleyan University

Soaring housing prices in China is causing fear that a housing price bubble may exist in the market and could cause a financial downturn like in America. According to the literature review, population percentage change, Gross Regional Product (GRP), and geographical place are the traditional factors used to explain housing prices. I collected the data from 31 cities in China from the Chinese Statistical Yearbook 2005-2009 published by National Bureau of Statistics of China. In my empirical model, I use housing price as my dependent variable, and use population percentage change, Gross Regional Product (GRP), and geographical place as my independent variables. In my multiple regression analysis, I created two dummy variables: year and city. If there are positive coefficients for some of the city variables, I can conclude that there is likely speculation in the real estate market, because the increasing housing price cannot be explained by the traditional demand side factors.

Poster Presentation P31

**DETERMINING THE COMPOSITION OF THE COLONY TUBES
OF PTEROPRANCHS**

Lukasz Sewera, Andrew McDonald, Tyler Saunders, and Elizabeth Balser*

Biology Department, Illinois Wesleyan University

Pterobranchs are a group of marine invertebrates within the Hemichordata. The hemichordates share characteristics with both chordates and echinoderms. Some aspects of pterobranch phylogeny are still unclear even after multiple molecular and morphological studies. Identification of any new shared characteristics with either group would be valuable information in determining clearer relationships between these groups. Pterobranchs live in colonies of secreted tubes, which are composed of a gelatinous material of unknown composition. Visually, the tubes appear similar to the tunic of tunicates, a group of invertebrates within the Chordata. The tunic of tunicates is composed of cellulose, not protein which is characteristic of marine and other animals. In this study, our goal was to determine the composition of the pterobranch dwelling tubes. We used purification methods, staining and microscopy to study the structure and properties of the tube material. To date, our results indicate that the tube material is primarily protein.

Poster Presentation P32

**UPTAKE OF DISSOLVED MACROMOLECULES BY LARVAE OF
*LYTECHINUS VARLAGATUS***

Andrew McDonald and William Jaeckle*

Biology Department, Illinois Wesleyan University

Larvae of echinoderms are capable of taking up small dissolved organic materials [(e.g., amino acids)] from seawater. Sea urchin larvae can also take up dissolved macromolecules [(e.g., proteins)] by cells of their digestive system from seawater (Huvard and Holland, 1986). However, Huvard and Holland's experiments contained concentrations of dissolved organic material substantially higher than those found naturally in seawater. We exposed pluteus larvae of the sea urchin *Lytechinus variagatus* to naturally found concentrations of proteins and polysaccharides in seawater. Pluteus larvae of varying ages were incubated in 35‰ filtered seawater containing 264 nM rhodamine-labeled dextran (mw=70000 g/mol), 264 nM fluorescein isothiocyanate-labeled bovine serum albumin (mw=66819 g/mol), 264 nM ferritin (mw=474000 g/mol), or 264 nM iron dextran (mw=70000 g/mol) for 1-4.5 hours. When viewed using fluorescence microscopy, rhodamine-labeled dextran was seen in the stomach cells after a 1-hour incubation. In contrast, labeled albumin was present in the cells of the epidermis, the entire gut lining, and the distal end of the larval kidney after a 1-hour exposure. Using light microscopy, ferritin uptake was detected in the cells of the stomach and the distal end of the kidney after a 4-hour exposure. Uptake was not detected with plutei incubated in 264 nM iron dextran after 4-hours, but the label was present in the stomach when using a 14 μ M concentration. Uptake patterns did not vary with larval age. Sea urchin pluteus larvae are capable of absorbing dissolved macromolecules, which better support organism bioenergetics compared to micromolecules, from seawater at concentrations that match their availability in nature suggesting that macromolecular dissolved organic material is an integral part in larval and adult development.

Poster Presentation P33

**HERITAGE SPANISH SPEAKERS: SELF CONFIDENCE
THROUGH STUDY ABROAD**

Jordan Menendez and Christina Isabelli*
Hispanic Studies Department, Illinois Wesleyan University

This study, describes the perception heritage Spanish-speakers have of their language abilities after they have studied abroad in a Spanish-speaking country. Research has shown that many heritage speakers struggle with their confidence in their heritage language, but that after studying abroad, the student's confidence in their language capabilities increases. The research questions include: Do the students have a higher self-confidence in speaking their native language after studying abroad? Do their perceptions of their language abilities change throughout the course of their study abroad experience? What do their heritage Spanish-speaking students feel effected their perceived language change after study abroad: improved vocabulary, pronunciation or knowledge of the general culture? The participants of this study will consist of native Spanish-speaking students who have studied abroad in a Spanish-speaking country. The data will be collected through a questionnaire and interviews of native speakers who have studied abroad within the past three years. The conclusions hope to show a direct correlation of to an increase in self-confidence in language capabilities, and studying-abroad.

Poster Presentation P34

SCANNING ELECTROCHEMICAL MICROSCOPIC IMAGING OF TASTE CELLS

Aaron Moore and Melinda Baur*

Chemistry Department, Illinois Wesleyan University

The goal of this project is to detect the stimulated release of serotonin and to image the topography of taste cells using Scanning Electrochemical Microscopy (SECM). The sense of taste is important for animals because it allows animals to recognize food, derive pleasure from food, and to detect food that may be unsafe to eat. The multiple taste signaling pathways respond to five different kinds of taste molecules: sour, sweet, umami, salty and bitter. Taste buds are organized groups of 50-100 cells responsible for the transduction of the taste signal. Within the taste bud, there are at least three different cell types: Type I (Glial-like) Cells, Type II (Receptor) Cells and Type III (Pre-synaptic) Cells. While there is evidence that some taste transduction also occurs in Type I and Type III cells, currently the best understood signal transduction pathways occur in Type II cells. Type III cells contain serotonin and can depolarize in response to various stimuli. We can detect the release of electro-active neurotransmitters like serotonin, using electrochemistry. This type of electrochemical detection of released neurotransmitters has been used successfully with model neurons. The role of the Type III Cells in the in the taste signal transduction pathway can be elucidated using this new electrochemical tool. Taste bud extraction and isolation have been successfully completed at Illinois Wesleyan University and now the focus is to detect neurotransmitter release from isolated taste buds.

Poster Presentation P37

**GREEN FOR GOLD:
THE REAL INFLUENCES OF OLYMPIC GLORY**

Adebola Olayinka and Michael Seeborg*
Economics Department, Illinois Wesleyan University

The Summer Olympics are arguably the most important international sporting competition in the world, trumping all other competition in its importance. At the 2008 Olympic Games in Beijing, 204 countries competed. However, the top 10 countries went on to win 56% of the 958 medals awarded. It is clear that the results of the Games are not based solely on individual athleticism, but what other factors play a role?

This study seeks the makings of a medal winning country by exploring inputs like population, GDP, host advantage, national health and government control of resources. Furthermore, it seeks to find whether countries recently independent of a controlling government continue to win medals at the same rate. Using multiple regression analysis and Olympic medal counts from 1992 through 2008, it looks at countries' ability to utilize their resources to in essence, produce medals. It finds that a larger GDP, a larger population, better health, and a controlling government all improve chances of gaining a larger medal share.

· Poster Presentation P38

ENVIRONMENTAL EQUITY IN ILLINOIS: A COUNTY-LEVEL COMPARISON OF TOXIC RELEASES

Ted Richards and Craig Broadbent*

Economics Department, Illinois Wesleyan University

In 2008, 21,695 industrial facilities reported to the US Environmental Protection Agency's Toxic Release Inventory Program. Collectively, these facilities reported releasing 3.86 billion pounds of toxic chemicals into the local environment. Of these 3.86 billion pounds of toxic chemicals, 78.7 million were released in the state of Illinois. This study addresses the question of whether or not this toxic pollution is distributed equally between individuals of different race in Illinois. The study uses both county-level hazardous air emissions data from the EPA and US Census data from the years 2000 and 2008. The study employs both statistical analysis and ordinary least squares regressions and determines that Illinois counties with higher populations of black residents are more likely to have higher levels of hazardous air emissions.

Poster Presentation P39

IR ASTROMETRY AND PHOTOMETRY OF THE ABELL 1882 SUPERGROUP

Derrick Rohl and Linda French* and Percy Gomez**

*Physics Department, Illinois Wesleyan University

**Gemini Observatory, La Serena, Chile

Previously observed characteristics of the Abell 1882 supergroup show signs of early stages of cluster formation. Supergroups and clusters have already been studied, but the unique stage of Abell 1882 will aid in understanding the process of galaxy cluster formation. The data set contains observations from the Infrared Side Port Imager at the 4.0-m Blanco telescope at the Cerro Tololo Inter-American Observatory (CTIO) during May 2010. The data reduction process, unique challenges of working with infrared data, and preliminary results will be discussed.

Rohl worked with Gomez from January through March 2011 as a research assistant with the Research Experience for Undergraduates (REU) program of the National Science Foundation. The program was hosted at CTIO in cooperation with Gemini Observatory in La Serena, Chile.

Poster Presentation P40

**EVALUATION OF DOM UPTAKE BY SPIONID POLYCHAETE LARVAE
FROM ANTARCTICA**

Travis Rosenkranz and William Jaeckle*
Biology Department, Illinois Wesleyan University

Thorson (1946, 1950) hypothesized that polar invertebrate species avoid a pelagic larval phase and instead favor direct development (“Thorson’s Rule”) and proposed an inverse relationship existed between latitude and the number of species with planktonic larval stages. Recent studies, however, suggest that a decrease in invertebrate larval abundance, not diversity, is correlated with an increase in latitude. The oceans surrounding Antarctica are nutrient rich, especially during late spring and early summer. Larvae of Antarctic spionid polychaetes feed using a dual-band system of cilia whose activities concentrate and then capture food particles. We evaluated the ability of spionid larvae from Antarctica to process seawater and absorb dissolved organic materials (DOM). Collected larvae were exposed to the iron-containing polysaccharide iron-dextran (1 mg / mL) for 12 to 24 hours at 0 °C. The presence of the iron (from iron-dextran) in larval tissue was detected using the “Prussian Blue” reaction. We found that the label was localized solely in the digestive system; there was no evidence of uptake by the epidermis. Control larvae, not exposed to iron-dextran, showed no label in tissue. Antarctic spionid larvae transport seawater through their digestive system and can potentially exploit DOM as an alternate source of food.

Poster Presentation P41

**EFFICACY OF A COCAINE- SCHIZOPHRENIA MODEL IN RATS:
BEHAVIORAL AND PHYSIOLOGICAL MEASURES**

Andrew W. Ross and Joseph Williams*
Psychology Department, Illinois Wesleyan University

Behaviors exhibited during exposure to acute levels of cocaine are similar to behaviors exhibited by patients with schizophrenia and psychosis, leading researchers to hypothesize that rats exposed to acute levels of cocaine may serve as a valid research model for schizophrenia. In addition to behavior, cocaine addiction and schizophrenia share many other commonalities, including similar neurochemical and neuroanatomical substrates. This study looks to test the validity of this model by measuring whether cocaine exposure in rats results in common behavioral deficits (e.g., aggression, spatial memory and cognitive flexibility) observed in patients with schizophrenia. The behaviors were measured in a cocaine experimental group (5 mg/kg) and a saline control group. The aggression was measured based on the Resident-Intruder paradigm. Cognitive flexibility and spatial memory were measured by examining performance in an Attentional Set Shift paradigm. Though no statistical significance was found, the trends seen in the data for spatial memory and cognitive flexibility support the hypothesis. However, the results of the aggression measure do not support the hypothesis. Overall, more research is necessary to determine the overall validity of the use of cocaine exposed rats as a model of schizophrenia.

Poster Presentation P42

EVALUATING THE EFFECTIVENESS OF GUN CONTROL LAWS IN THE UNITED STATES

Lauren Seidner and Amit Ghosh*

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In recent years, the social and legal environments surrounding firearms have changed drastically. This study aims to discover if gun control legislation is an effective deterrent mechanism for crime by constructing an index that systematically compares gun laws at the state level and scores them on 30 weighted criteria in six different categories. The index is constructed for 10 high regulation states and 10 low regulation states for the years 1996 to 2005, and using panel data and Ordinary Least Squares regressions, the paper analyzes the relationship between gun control legislation and crime rates, while also accounting for socioeconomic and demographic effects. This study finds that the gun control index has a negative and statistically significant effect on violent crime rates.

JEL Classifications: H11 (Structure, Scope, and Performance of Government), K42 (Illegal Behavior and the Enforcement of Law), R59 (Regional Government Analysis: Other)

Poster Presentation P43

**THE LIGHT/LYMPHOTOXIN COSTIMULATORY FAMILY AND
LIPID METABOLISM**

Lukasz Sewera and Catherine A. Reardon*
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Department of Pathology, University of Chicago

Costimulatory molecules serve an important role in immune cell activation and have been shown to affect the extent of atherosclerosis. This study looked at costimulatory molecules in the LIGHT/Lymphotoxin family and how they affect levels of plasma lipids, which can influence atherosclerotic development. Previous research indicates that deficiencies in molecules involved in this costimulatory pathway result in lower plasma lipid levels. In this study we developed and tested several hypotheses that may account for these differences. We tested if this costimulatory family influenced the accumulation of lipids in the liver, the secretion of lipids by the liver, the absorption of lipid by enterocytes and the expression of hepatic genes involved in lipoprotein biosynthesis.

MANAGEMENT OF PERMANENT PACING WIRES DURING TRICUSPID VALVE REPAIR

Luke Sheen and Daniel L Cherkassky*, Virna L. Sales*, MD, Richard Lee*, MD, MBA,

†Brittany Lapin, MPH, †Edward Wang, PhD and Patrick M. McCarthy*, MD, FACC

Bluhm Cardiovascular Institute, *Division of Cardiac Surgery, and †Clinical Trials Unit at Northwestern University Feinberg School of Medicine and Northwestern Memorial Hospital, Chicago, IL

Objectives: We compared 3 management techniques for permanent pacing wires by studying the recurrence of postoperative tricuspid regurgitation (TR).

Methods: From 2004-2009, 40 patients (mean age 71 ± 11 years, 60% male) with prior permanent pacing wires in the right ventricle underwent tricuspid valve annuloplasty (TVA). Wires were managed with three different surgical approaches: leaving the wire in its transtricuspid position ($n=22$); removal and epicardial replacement ($n=10$); and securing it in the postero-septal commissure ($n=8$). Compared to removed group, transtricuspid and secured groups had greater prevalence of pre-operative pulmonary hypertension ($96\%[21/22]$ vs. $88\%[7/8]$ vs. $40\%[4/10]$, $p=0.001$) and atrial fibrillation ($86\%[19/22]$ vs. $88\%[7/8]$ vs. $40\%[4/10]$, $p<0.05$). Ejection fraction was similar (transtricuspid 45%, removed 53%, and secured 47%; $p=0.8$). The percentage of patients with NYHA class III/IV were similar among the 3 groups (transtricuspid $77\%[17/22]$, removed $70\%[7/10]$, and secured $50\%[4/8]$; $p=0.5$). Ambler score was highest in secured group (28 ± 14 , $p<0.05$) followed by transtricuspid (20 ± 10) and removed (14 ± 12) groups. A total of 148 preoperative, discharge, and late follow-up (>6 months) transthoracic echocardiograms were analyzed. Mean follow-up was 21.9 ± 16.6 months (range 10-1840 days) and complete in 28/29 (97%).

Results: One patient died in the hospital in each group after TVA. Incidence of TR 3+/4+ decreased in all groups at discharge ($70\%[28/40]$ vs $5\%[2/40]$, $p=0.001$) and late follow-up ($15\%[8/53]$, $p<0.001$ with no 4+ TR) compared to preoperatively. Preoperatively, secured group had the highest significant TR compared with transtricuspid and removed groups ($88\%[7/8]$ vs. $68\%[15/22]$ vs. $60\%[6/10]$, $p=0.4$) but at discharge, only transtricuspid had TR recurrence ($9\%[2/22]$, $p=0.4$). At late follow-up, significant TR redeveloped and was lowest in secured and similar in removed and transtricuspid groups ($14.3\%[1/7]$ vs. $15.4\%[2/13]$ vs. $15.2\%[5/33]$, $p=0.998$).

Conclusion: Patients in secured group represent a cohort with high risk factors for TR recurrence (greater preoperative pulmonary hypertension, AF and high ambler score) compared with those in removed group, but similarly demonstrated decreased TR across time. High-risk transtricuspid patients showed worsening TR after repair. Securing pace wires into the commissure during TVR may be a reasonable approach in management of pacemaker wires in high risk patients.

Poster Presentation P45

**EXAMINING POLITICAL DEFECTION: AN ANALYSIS OF AFFECTIVE
INTELLIGENCE, MEDIA ATTENTION, POLITICAL KNOWLEDGE
AND ISSUE AGREEMENT**

Kyle Sloan and Carolyn Brown-Kramer*
Psychology Department, Illinois Wesleyan University

In politics the political party affiliation of the voter often serves as a predictor for the voting behavior of that individual. However, a voter may occasionally vote against his or her political party, an action known as defection. The present study serves two purposes. The first is to compare defectors and non-defectors across a variety of relevant characteristics, including emotion experienced for one's in-party candidate, attention to media, political understanding, and issue agreement between oneself and one's in-party candidate. The second is to examine the correlations between the individual elements of these theories with one another. Results of this study indicate emotion and issue agreement to be significantly different between defectors and non-defectors, while political understanding and media attention are not. Further correlations were found between emotion and the other topics mentioned, suggesting a relationship between emotions and voting behavior.

Poster Presentation P46

**EVALUATING THE EFFECTIVENESS OF CONSERVATION EDUCATION
INCORPORATED IN AN ANIMAL EXHIBIT AT THE INDIANAPOLIS ZOO**

Vanessa Snyder and Given Harper*
Biology Department, Illinois Wesleyan University

Few studies have evaluated the effectiveness of educational methods at non-traditional, public learning institutions such as zoos. From May-August 2010, observational and survey data were collected about the effectiveness of conveying conservation information at the cheetah (*Acinonyx jubatus*) exhibit at the Indianapolis Zoo. On average, 48.1% of responses to each cheetah survey question were incorrect. In the surveys, a significantly greater proportion of children < 18 years-old (82/138; 59%) answered at least one of three questions correctly from signs compared to adults (268/612; 44%; $\chi^2 = 11.052$, $df = 1$, $p = 0.001$). The zoo had previously mailed or e-mailed members the same information about cheetahs which was contained in the signs, yet there was no significant difference in the proportion of adult zoo members who answered at least one of three questions correctly (176/347; 51%) compared to adult non-members (208/403; 52%; $\chi^2 = 0.059$, $df = 1$, $p = 0.807$). Observation of patrons uninvolved with the cheetah survey indicated only 4% (2/52) of visitor groups viewed cheetah exhibit signs. Results suggest exhibit signs could be effective educational tools, especially for children, if zoos are able to determine which methods (e.g. utilizing technology as a lure) successfully entice patrons into reading the signs. Future research should determine which combination of educational tools/programs most effectively embeds the desired information into patrons' long-term memory.

Poster Presentation P47

SOLID-PHASE PEPTIDE SYNTHESIS

Elisabeth Sonta and Brian Brennan*

Chemistry Department, Illinois Wesleyan University

Sickle cell disease is a genetically inherited blood disorder that leads to the aggregation of hemoglobin in the absence of oxygen. This aggregation leads to the formation of the characteristic sickled shape of red blood cells, which is the cause of the symptoms of the disease. There are currently few treatments for the disorder, with the only cure being a risky bone marrow transplant. Previous studies in the lab have determined fifteen peptides that bind to deoxygenated hemoglobin; these peptides may prevent the aggregation of hemoglobin and therefore the sickled shape of the red blood cell. My research is focused on the synthesis and purification of these peptides for their use in future studies involving their interaction with deoxygenated hemoglobin. The results of this study will be presented.

Poster Presentation P48

**NATIVE SPANISH SPEAKERS AND THEIR QUEST FOR ENGLISH IN THE U.S.:
DO THEY WANT TO LEARN?**

Matthew Styx and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

This descriptive study analyzes the motivation to learn English and Spanish by Hispanic blue-collar workers in Waukegan, Illinois. The research questions are: Are they willing to learn English? What means have they taken to improve their English language skills? What opportunities and or resources are available to improve their language skills? What obstacles do they face in learning English? With data collected through a questionnaire and interview I hope to find that these native Spanish speakers want to learn English and to show the difficulties and obstacles they have in achieving that goal. The conclusions of this study may explain the misguided goals of the “English Only” movement, an effort to legally make English the official language of the US. One of the main arguments is that native Spanish speakers are refusing to learn English which is causing deterioration of the English language. This study will examine the validity of that argument by discovering the motivation to learn English of a sampling of native Spanish speakers.

Poster Presentation P49

**THE STATE OF HISPANIC EDUCATION: CORRELATIONS BETWEEN
EDUCATIONAL ATTAINMENT, NATIVITY AND LANGUAGE IN ILLINOIS**

Stephanie Swope and Christina Isabelli*

Hispanic Studies Department, Illinois Wesleyan University

The purpose of this study is to investigate the levels of educational attainment for Hispanics in Illinois and to gain an understanding of why possible trends occur. The research question is: What is the correlation between English proficiency, nativity and educational attainment for Hispanics as compared with the overall population in Cook and McLean counties? In order to determine the correlation between these variables, data from the 2000 US Census were analyzed for the two population groups. Pertinent data included selected social characteristics, such as levels of educational attainment, nativity and language spoken at home. Though some statistical variation exists based on location, the overall findings indicate that levels of educational attainment are lower for the Hispanic population. Furthermore, as the percentages of the foreign born population and those who spoke English “less than ‘very well’” increase, the levels of educational attainment decrease in all three geographic areas. These findings indicate a need to explore bilingual education programs within Illinois, particularly those that focus on English Language Learners.

Poster Presentation P50

**THE NOSE KNOWS: BUSINESS, NATIONAL IDENTITY, AND THE
FRENCH PERFUME INDUSTRY**

Whitney Wilkerson and Scott Sheridan*

French and Francophone Studies Department, Illinois Wesleyan University

The perfume industry has become both a source of income and national pride for France. Many of the luxurious fragrances created in French perfumeries have gained worldwide renown, catapulting the industry from its simple agricultural roots in perfume houses to a lucrative industrial enterprise, representing nearly 11% of the global sales figure. France alone represents 30% of the global market in the perfume industry. This presentation examines the historical links of perfume to high fashion and the current marketing tactics used in France to promote the perfume industry and tourism for those seeking the ultimate destination for designer fashion. In addition, this presentation explores the fabrication and categorization of fragrance, both of which contribute to the exclusive mystique of the perfume industry. The presentation also explores the economic benefit of perfumeries for France, as well as the economic influence of the industry on an international scale.

Poster Presentation P51

**PULSED RADIOFREQUENCY NEUROMODULATION OF
PERIPHERAL NERVE INJURY**

Alex Willett and Joseph Williams*

Psychology Department, Illinois Wesleyan University

Pulsed-radiofrequency neuromodulation (PRF) is a pain management technique that involves placing a needle electrode near nerves and generating electrical current pulses in order to modulate the transduction of somatosensory information through those nerves. This technique evolved from a similar radiofrequency (RF) procedure in which constant current is distributed to a nerve or neural structure. RF interrupts nerve conduction and prevents somatosensory information from reaching the brain. In the case of continuous radiofrequency, however, the destructive lesion can cause further complications and unwanted side effects. According to research, PRF, unlike RF, is non-destructive yet still induces analgesia and consequently represents a more advantageous technique. Only a handful of previous studies have attempted to determine the neural effects of PRF. The current study seeks to develop an animal model of PRF using the spared nerve injury model and, through molecular analysis of neurological tissues harvested from rats, examines mechanisms by which PRF causes analgesia.

Poster Presentation P52

PARTICLE TRACKING AND AOD CONTROL

Nathaniel Wolanyk, Carl Mueller, Patrick Dahl, Evan Baker and Gabriel Spalding*
Physics Department, Illinois Wesleyan University

My project is two-fold: to implement LabVIEW-based software control the digital I/O cards controlling two Acousto-Optic Deflectors (AOD) and to implement computer vision software for automated tracking of two microparticles and their proximity to each other. The AODs role in this project is to quickly switch the laser between two points and thus trap two microparticles with just one laser beam. The particles have no reason to move quickly because the only outside force on them is Brownian motion, due to the random thermal movement of water molecules. The goal of my AOD-control program was to quickly (under 1ms) switch from one trap to another and back again, while also equilibrating the power delivered to each trap. The basic control task has now been accomplished, by using a while loop to reiterate quickly, allowing rapid switching between the two different inputs, by using data acquisition (DAQ) sub-virtual instruments (subVIs) built into LabVIEW. As for particle tracking, we have begun use of a program developed by one of our collaborators that is quite advanced: bit-map frames captured during video microscopy are analyzed as an image sequence to identify and locate the particles in each frame. As a prequel, we have used additional software to convert raw video from the microscope to avi video, and finally to a bitmap image sequence. Also, I modified the particle-tracking program to display displacement, rather than speed. At this point, I am able to optically trap two microparticles, at controlled separations, and then, as the traps “blink” off, track their displacements, so as to build up Boltzmann statistics relevant to the particle-particle interactions.

Poster Presentation P53

**MONITORING THE ELECTROCHEMICAL ACTIVITY OF BIOLOGICAL SAMPLES
USING SCANNING ELECTROCHEMICAL MICROSCOPY**

Erica Woodall and Melinda Baur*

Chemistry Department, Illinois Wesleyan University

The goal of the project is to develop the Scanning Electrochemical Microscopy (SECM) as a tool to study the biological effects of oxidative damage on rat pheochromocytoma cells (PC12 cells). SECM is a useful tool for the analysis of biological samples because the ultramicroelectrode tip of the probe can detect the presence of electrochemically active compounds such as neurotransmitters, particularly dopamine and norepinephrine, while simultaneously characterizing the topography of the cell. The topography of the cell was determined by maintaining a constant distance between the tip of the electrode and the surface of the cell. In the collector mode, the potential of the SECM microelectrode can be set to detect dopamine release after stimulation. A spike in current indicated the release of neurotransmitters from the cell. Successful stimulation was observed on both undifferentiated and differentiated PC12 cells.

Poster Presentation P54

**PH-DEPENDENT 15-LIPOXYGENASE CATALYZED PEROXIDATION OF
LINOLEIC ACID: HPLC/ESR/MS STUDY**

Shuting Zhong, Yan Gu, Preeti Purwaha, and Benidict Law*, Steven Y. Qian*
North Dakota State University Center for Protease Research
Department of Pharmaceutical Science

Linoleic acid (LA), abundant in plant and vegetable oils, is the most common type of omega-6 polyunsaturated fatty acid consumed in western diets and the preferred substrate for 15-Lipoxygenase-1 (15-LOX-1). Oxidative lipid peroxidation of LA by 15-LOX-1 to produce bioactive metabolites, 9- and 13-HODE, has been shown to influence progressions of cancers. Of the two metabolites, 13-HODE has been the focus of lipid peroxidation research because it is the dominate product from 15-LOX-1 catalyzed oxidative metabolism of LA. However, most of the controversial in-vitro research was performed under normal physiological (pH 7.4) overlooking the strong evidence for acidic microenvironments of tumor tissues (pH 6.8). Our purpose is to determine the metabolite generation patterns of LOX-mediated LA peroxidation under different pH conditions. A combination of LC/ESR/MS was used to detect metabolic adducts generated under pH 6.5 to 8.0 in the presence of spin trap α -[4-pyridyl-1-oxide]-N-tert-butyl nitron (POBN). In-vitro studies used 15-LOX-1 isolated from soybeans while cell culture studies used human parental HCT-116 colon cancer cell line, and transfected HCT-116 with overexpressed 15-LOX-1. Our in Vitro results show the activity and specificity of 15-LOX-1 varies under different pH. A decrease in total radical adducts with decreasing pH. In addition, the specificity of soybean 15-LOX-1 oxygenation of LA shifted from preferred C-13 to the C-9 position under acidic conditions producing 9-HODE octanoic adduct, but no detectable amounts of 13-HODE pentyl adduct at pH 6.5. Interestingly, cell culture results show no detection of 13-HODE adduct, but the presence of 9-HODE adduct at tumor pH suggests further investigation of the 9-HODE metabolite is needed to determine the role of 15-LOX-1 catalyzed peroxidation of LA in colon cancer.

EDUCATIONAL STUDIES POSTERS - ES

9:00 – 10:00 a.m.

Lower Level – Ames Library

Poster Presentation ES

**MOTIVATING YOUNG READERS: CREATING AND IMPLEMENTING A
CLASSROOM LIBRARY THAT IS RESPONSIVE TO STUDENTS AND THEIR
DIVERSE READING INTERESTS**

Emily Alford and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

This inquiry was motivated by my student teaching experiences in a fourth grade classroom during which I experimented with the idea of motivating students to read through engaging them in a classroom library that was responsive to their diverse reading needs and interests.

I implemented a plan that integrate specific activities and interactive lesson plans and media into the already existing reading curriculum spotlighting the classroom library. My study was conducted and highlighted through students' organization of the classroom library, the inclusion of additional media into the already substantial classroom library, novel studies and book talks and the impact of these activities on student motivation were examined by conducting student interviews and inquiries. Field notes brought me to the crucial conclusion – allowing students time to be engaged in their classroom library can be beneficial when it comes to motivating young, growing readers. Most important is the readily available access to books and the integration of student choice that fosters voluntary reading within a classroom.

Poster Presentation ES

MOVEMENT AND MANIPULATIVES IN MATH!

Shirley T. Alonzo and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

This inquiry was motivated by my interest in keeping students actively engaged in their education, specifically in mathematics. I conducted this self-study while student teaching during the spring of 2011 in a kindergarten classroom. My self-study focused on answering the question: “How can I support children’s active engagement during math lessons, specifically through movement and hands-on activities?” This self-study included creating and implementing lessons that involved the use of either movement or hands-on mathematics activities on topics such as addition, telling time, and non-standard measurement. I concluded that using movement and manipulatives can be beneficial in teaching mathematics concepts that may otherwise be abstract. In this self-study I reflected on my students’ participation and understanding and on my own teaching practice of these concepts. I also discussed how this inquiry project has affected me as an educator and how it will continue to influence my teaching.

Poster Presentation ES

**VIRTUAL REALITY: THE ADVANTAGES AND DISADVANTAGES OF VIDEO
GAME PLAY ON STUDENTS' LEARNING**

Joanna Baffes and Ana Floriani*

Educational Studies Department, Illinois Wesleyan University

Technology is constantly advancing and has evolved to become significant to many aspects of daily life. Video and computer games are dominating the technological world and are particularly prominent in the lives of adolescents. In today's society, children are also using technology and video games at increasing rates. This study examines the advantages and disadvantages of implementing video game play in elementary classrooms, specifically as it affects academic achievement. Research has shown that children are spending large amounts of time video gaming at home, but video gaming is uncommon within the classroom setting. Some studies have shown that teachers who include educational video game play in their curriculums have found positive results in their students' learning and academic achievement. Others have examined the negative results of video game play such as attention problems and increases in bad, and sometimes violent, behaviors. This paper explores both perspectives and describes the relationship between children and video game play and the effects this relationship has on students' learning.

Poster Presentation ES

**USE OF CREATIVE WRITING TO CHANGE
STUDENTS' PERCEPTIONS OF ESSAYS**

Amy Bannon and Jeanne Koehler*

Educational Studies Department, Illinois Wesleyan University

Student resistance to writing formally structured essays is a common roadblock found within the high school classroom across disciplines. Offering an alternative to formal essays, creative writing provides students with a less rigid opportunity for exploring and communicating personal viewpoints and discoveries. This paper investigates how students' perceptions of essay writing change when creative writing is incorporated into the writing process. This study was completed using a qualitative self-study approach and included varying data collection methods such as field notes, student work, and student feedback. The findings of this study indicate that opportunities for creative writing increase student interest and engagement in composition. Small creative writing assignments offer manageable steps for students to explore ideas and transition into longer formal essays. As personal connection and investment in writing increases, students more naturally establish individual voice and integrate unique perspectives in their academic writing. Larger implications of this study suggest that providing a "real world" purpose or connection in writing opportunities may be essential for activating student interest and participation. This study encourages further exploration of how educators can make encounters with writing more meaningful for students by combining alternative methods with more traditional ones.

Poster Presentation ES

INTEGRATION OF HEALTH EDUCATION INTO MATHEMATICS

Cameron Barnish and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

The purpose of this study was to explore the integration of health education into the mathematics curriculum in a fourth grade classroom. I developed and taught math lessons that involved making graphs which focused on diet and exercise. The unit was designed to incorporate two Illinois State Learning standards in which students should be taught the basic principles of health in order to maintain physical fitness and be aware of how to prevent and treat illness and injury. I generated my own post unit assessment of student learning and provided students with a journal in which to record their written reflection on healthy diet, exercise, and sleeping habits. I examined their journals and test results to determine if they had learned the math skills while also looking for meaningful responses in their journals. I concluded that health education can be successfully integrated into mathematics when it is connected to student's lives and there is ample time to teach the unit.

Poster Presentation ES

**MULTICULTURALISM AND METAMORPHOSES: HOW CHANGING RACIAL
DEMOGRAPHICS IN THE UNITED STATES ARE INFLUENCING MUSEUMS IN
THE 21ST CENTURY**

Catherine Bayles and Ana Floriani*

Educational Studies Department, Illinois Wesleyan University

This poster presentation reviews literature related to museums and their ability to cope with the shifting demographics of our nation. It aspires to facilitate discussion pertaining to topics significant to educators as well as the general public. Through the analysis and review of 12 current research articles on the topic of multiculturalism and museums, it has been determined that the changing racial makeup of our country is affecting the museum world greatly. Upon reflection of the pieces of literature read, it has been revealed that the altering demographics and the majority-minority shift in populace has led museums to focus on multicultural education, race and ethnic relations, and programs targeting minority populations. The research highlights the demographic move as a whole, how these transformations are affecting cultural institutions such as museums, and what solutions individual museums are incorporating in their practices to solve the quandary. A universal feeling expressed throughout the poster presentation is the museum world's need to see museums as living breathing advocates of cultural pleurisy. It is thought that they should be strongholds for communities where all people can come to be represented.

Poster Presentation ES

**IMPROVING STUDENTS' RETENTION OF MATHEMATICS AND SCIENCE
CONCEPTS: THE CASE OF TWO TEACHING EXPERIMENTS**

Kristina Bennett, Stephanie Ross and Leah Nillas*
Educational Studies Department, Illinois Wesleyan University

This self-study conducted using teaching experiment methodology (Steffe & Thompson, 2000) examined high school students' retention of mathematics and science concepts. While there were differences between the mathematics and science classrooms, both studies used entrance and exit slips as primary forms of assessing short-term retention. Unit tests functioned as assessment for long-term retention. The findings show that a variety of teaching strategies benefited students' retention of concepts in both mathematics and science. Results from these teaching experiments contribute to the expansion of limited research on students' retention of mathematics and science concepts.

Poster Presentation ES

WHAT WORKS IN WRITING

Margaret Byrne and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

For this self-study, I developed and presented a series of authentic writing experiences and corresponding mini-lessons for fourth graders. This study looks my journey through the early stages of implementation of a literacy program based on writer's workshop. The goal of this study was to answer the questions of which teaching methods best engage and motivate students, whether the implementation of some components of writing workshop leads to differentiated, individualized instruction in support of all students' writing, and how to balance grammar instruction with workshop practices. By evaluating my lesson plans, student work, writing-conference transcripts and field note, I find that student-teacher writing conferences are especially useful, both for differentiating instruction and for developing positive attitudes about writing. The results highlight the importance of explicit instruction of the writing process in order to teach the skills needed to create an effective writers' workshop.

Poster Presentation ES

WHAT IS THE MOST APPROPRIATE LATE WORK POLICY?

Michael Czajkowski and Jeanne Koehler*

Educational Studies Department, Illinois Wesleyan University

High school teachers employ a variety of late work policies which stress either content knowledge or responsibility—rarely both. As a result I came up with my own hybrid policy, which allowed my students to turn in late work by working on it after school during the week in which it was due. This study was completed using a qualitative self-study approach and included varying data collection methods, such as student work and feedback, interviews, and the policy's sign in sheet. As a result I learned not only how my students felt about and made use of the policy, but how the quality of their homework was affected by it, as well as the logistics of organizing such a policy. Further research opportunities left unresolved could investigate how homework policies could differ by grade level and/or ability level, by employing re-do's, and what type of homework is given.

Poster Presentation ES

**PERSONALIZED LEARNING IN AN URBAN CLASSROOM:
USING STUDENT FEEDBACK TO DESIGN LESSONS**

Maribeth Dahlberg and Jeanne Koehler*

Educational Studies Department, Illinois Wesleyan University

There is much discussion over how students learn best, yet the students are rarely invited to participate in this discussion. Over the course of my student teaching, I sought to create a student-centered classroom, drawing heavily from student feedback to guide me. My goal was to create a cooperative learning environment where the students had more power in the guiding the lessons than they have had in traditional classrooms. This study was completed using a qualitative self-study approach and involved varying data collection methods including student feedback slips, informal interviews, and field notes. Two freshman literature classes were examined—one honors-level and one regular-level. Through this study, I found that, when given the opportunity, students are more engaged and motivated when they are invited to participate in the planning process. Furthermore, varying class dynamics affect the success of different feedback collection methods. This study suggests that the student input is a valuable, albeit underutilized, source of information in the greater study of student-centered education.

Poster Presentation ES

IMPACT OF INCORPORATING MOVEMENT AND HANDS-ON EXPERIENCES ON STUDENT LEARNING

Cara Deverman and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

This inquiry took place during my student teaching experience. While student teaching, I explored the use of movement and hands-on experiences throughout the curriculum as a way to effectively engage second graders in learning. I designed and taught lessons incorporating movement, utilized movement breaks, and added movement to classroom transitions in order to answer my research questions of:

- How can I effectively incorporate movement and hands-on learning into lessons and daily routines?
- What impact will incorporating movement and hands-on experiences into the classroom have on student learning?

I conclude that movement positively impacts student learning academically, physically, socially, and emotionally. I discovered that the most successful use of movement in the classroom is the natural integration of movement into content area lessons. Movement helps meet the needs of diverse students, increases daily activity for children, and fosters excitement for learning.

Oral Presentation ES

**BEING SMART ABOUT SMARTBOARDS: A TECHNOLOGICAL PEDAGOGICAL
AND CONTENT KNOWLEDGE (TPACK) ANALYSIS**

Katie Dietrich and Leah Nillas*

Educational Studies Department, Illinois Wesleyan University

Many educators have concerns that although interactive whiteboards are beneficial in their presentational and motivational aspects, they only have a “limited value in improving subject understanding” (Glover & Miller, 2009). This research study investigated that exact question – how the use of an interactive whiteboard (IWB) influenced students’ learning, and what types of IWB-based activities facilitated students’ mathematical understanding. Lessons were presented to high school Algebra students and relied heavily on various SmartBoard applications to convey the concepts. In turn, the effectiveness of the IWB was determined through observations, reflections, assessments, and student responses. This qualitative data was analyzed using the Technological Pedagogical and Content Knowledge (TPACK) framework (Mishra & Koehler, 2006). Results support that the use of an IWB improves students’ understanding of mathematics. However, it is imperative that technical and school-wide support is widely available and that the teacher is trained in how to implement its applications appropriately.

Poster Presentation ES

**TRANSLATING SHAKESPEARE'S LANGUAGE INTO THE
MODERN CLASSROOM**

Kathleen Ellison and Jeanne Koehler*

Educational Studies Department, Illinois Wesleyan University

Shakespeare has been taught in classrooms for generations, yet I was motivated by the desire to give students a more comprehensive and modern understanding of *Romeo and Juliet*. This study was completed using a qualitative self-study approach and included varying data collection methods, such as gathering student work, conducting discussions, and recording videos and photographs. Because I was able to teach the course twice and consecutively, I was able to reflect on my methods and change them accordingly the second time around. The findings of this study examine effective methods for teaching Shakespeare in the classroom from a wide variety of angles. This information is not only helpful for teaching Shakespeare, but it gives teachers a wide range of ideas that they can incorporate into other works of literature as well.

Poster Presentation ES

IT'S NOT JUST ABOUT THE PTA: HOW FAMILIES CAN GET INVOLVED IN THEIR CHILD'S EDUCATION

Jenna Frazier and Ana Floriani*

Educational Studies Department, Illinois Wesleyan University

This paper reviews the current literature related to parental involvement in elementary schools. It investigates how educators can improve parental involvement in schools in order to strengthen family-school relationships and student success. The paper provides various definitions and types of parental involvement. The benefits to and the importance of developing collaborative partnerships between parents and educators are reviewed, and the possible obstacles and barriers to parental involvement are examined. The reviewed literature offers concrete ways that families can become more involved both at home and school, and how teachers and schools can promote parental involvement. Implications of the findings address steps that future educators can take and provide ideas for possible extensions of this literature review.

Poster Presentation ES

**UTILIZING MATHEMATIC MANIPULATIVES IN THE
ELEMENTARY CLASSROOM**

Carlie Hoekstra and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

This self-study was designed to investigate the impact of using mathematic manipulatives on elementary students' learning of expected math skills, specifically at the fourth grade level. This inquiry included the implementation of both concrete and virtual manipulatives. In order to determine how to utilize manipulatives in math to support and foster student attention, comprehension, and retention, this inquiry focused on observations, lessons, student assessments, and reflections. I conclude that manipulatives can be beneficial tools used to enhance student learning when they are properly applied within the classroom. It is necessary for teachers, as well as students, to have ample time to learn how to use the manipulatives. I believe the most effective way to utilize manipulatives, so students can better understand an abstract mathematical concept, is when teachers take time to research and demonstrate for students how to correctly use the manipulatives.

Poster Presentation ES

COOPERATIVE LEARNING

Eleanor Holisky and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

This self-study project was motivated by the children in my classroom during my student teaching practicum. During the beginning of this experience, I observed my class as whole struggling with cooperative learning skills inside the classroom and social skills outside of the classroom. The following questions were posed during this study:

- How can I design cooperative learning lessons and activities that fit the needs of my class as a whole?
- How can I effectively teach the skills and the importance of the skills required to be successful in a cooperative learning group?
- How can I help my students understand that many skills developed within the classroom can be implemented in the world outside their classroom – specifically skills learned through working with others?

Important components of this self-study were lessons using cooperative learning, class discussions after completing cooperative learning activities, and close observation about how children began to incorporate cooperative social skills into other aspects of their lives. At the end of the semester, I was able to conclude that cooperative learning based lessons produced the best results when students were given specific tasks, when students were grouped based on personal opinions about what their strengths were, and when a teacher or adult promoted a team mentality and stressed the common goal while students worked. In regards to how well students implemented their cooperative learning social skills in outside environments, I found differing results from student to student and my data relies strongly on what types of situations students were involved in.

Poster Presentation ES

UNDERSTANDING LIFE: SENIOR PERSPECTIVES IN CREATIVE WRITING

Elizabeth Hudson and Jeanne Koehler*

Sociology Department, Illinois Wesleyan University

Although high school is meant to prepare students for the “real world,” it is difficult to determine what knowledge about life students possess at graduation. Learning about how seniors understand and think about life experiences provides educators with greater knowledge of how to meet their maturing needs. This presentation examines how seniors from a Creative Writing class view life themes that came across through their writing. This study was completed using a qualitative self-study approach and included varying data collection methods, such as field notes, informal classroom discussions, and student work. Research has shown that student conceptions of life experiences are varied but developing during senior year. The findings indicate that students benefit from collective discussion since it promotes sharing varied experiences, knowledge, and beliefs. The findings of this study suggest the values of understanding senior beliefs so that educators can widen student perspectives in a safe environment.

Poster Presentation ES

**IMPLEMENTATION OF STUDENT-CENTERED
LEARNING IN THE ELEMENTARY CLASSROOM**

Beth Izzo and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

This self-study examines implementation of student-centered learning in a second grade gifted classroom. My objective was to meet the needs of the students in ways that urged them to participate in their own learning. Specifically, I explored the questions, "how can I implement student-centered activities in a way that students still obtain all the information that would be presented to them in a traditional teacher-centered lesson?" and "what are the students' responses to learning that is centered on their specific educational and developmental needs?"

Data included documenting and reflecting upon lessons which involved hands-on activities or cooperative group work. All lessons required students to take an active role in their own learning. I found that student-centered learning is more enjoyable than traditional teacher-centered instruction for both students and teachers, just as effective in the acquisition of skills and knowledge, and perhaps more effective in engaging students in higher-order thinking.

Poster Presentation ES

**BILINGUALISM VS. SPECIAL NEEDS: THE METHODS AND CRITIQUES OF
DIAGNOSING LANGUAGE ACQUISITION ISSUES VS. SPECIAL NEEDS**

Kristin Lee and Ana Floriani*

Educational Studies Department, Illinois Wesleyan University

Many English language learners (ELLs) who are having trouble learning a second language are incorrectly labeled as having special needs. This paper reviews and critiques the assessment methods for diagnosing language acquisition issues so that ELLs are correctly placed in an educational setting. The review analyzes the most relevant research about bilingual special education. First, the terminology associated with the field and preliminary problems are defined and explained. Then, the major themes are discussed, including the disproportionality of English Language Learners in special education programs, the effect of learning environment, level of understanding of the first language, and assessment. Despite the amount of research, there are no clear solutions to the problem of misdiagnosing ELLs. The review concludes that additional research needs to be done and new practices need to be instilled. Findings support the need to improve the manner in which students are tested and placed in special services. Furthermore, creating a better system that will place ELLs in the correct type of program will create a better environment for all students.

Poster Presentation ES

**IMPLEMENTING GROUP INTERACTIONS TO ENCOURAGE PEER TEACHING,
SOCIAL RELATIONSHIPS, AND COLLABORATIVE PROBLEM SOLVING IN
MATHEMATICS CLASSROOM**

Jessica Madigan and Leah Nillas*

Educational Studies Department, Illinois Wesleyan University

“Cooperative learning is a pedagogical practice that has attracted much attention because of a large body of research that indicates students gain both academically and socially when they have the opportunities to interact with others to accomplish shared goals” (Johnson & Johnson, 2002). I implemented a self-study focusing on small group interactions into everyday lessons throughout student teaching. The participants of my study were unfamiliar with group work, but had positive perceptions of group work. By encouraging an active involvement in mathematics, I was able to increase the presence of peer teaching, social relationships among students, and collaborative problem solving in the classroom. Through surveys, observation, teacher journals and video analysis, I learned that collaborative learning, when introduced effectively and implemented properly, could prompt students’ mathematical understanding and promote learning communities in mathematics classrooms.

Poster Presentation ES

**USING VOCABULARY TO ENHANCE THE UNDERSTANDING OF
MATHEMATICS AS A LANGUAGE**

Jennifer Monaco and Leah Nillas*

Educational Studies Department, Illinois Wesleyan University

Mathematics vocabulary is not often a focus in the mathematics classroom; however, it is found that acquiring new vocabulary enables students to communicate better mathematically, which allows teachers to gauge student understanding. Bay-Williams and Livers (2009) discuss the importance of making connections between previous concepts and new material, so students can apply knowledge and explore and engage on an individual level. Monaco's self-study focuses on two main topics: types of activities that help students learn mathematical concepts and the advantages of reading, writing and speaking mathematics. She conducted the study in three geometry classes and one fundamental geometry class at a rural high school in central Illinois. Monaco incorporated different activities, gathered student feedback, collected student work, and analyzed her personal journal reflections to draw conclusions on vocabulary usage in the mathematics classroom. Many students are not accustomed to emphasis on vocabulary in the mathematics classroom so student feedback and personal reflection allow for growth to enhance student learning and understanding of mathematical concepts.

Poster Presentation ES

CITIZENSHIP EDUCATION THROUGH A CLASSROOM ECONOMY

Meg Nally and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

This self study is based on my belief that citizenship education should be a part of our schools' curriculum. Drawing on the work of Raif Esquith, I implemented a classroom economy to facilitate students' hands on educational experience of being a working citizen by contributing in our classroom. Over the course of the study, students were given responsibilities to keep our classroom running smoothly. They were "paid" for some of these responsibilities and were responsible for managing their earnings to pay rent, fines, or purchase rewards. To assess what students learned, I implemented three assessments, photographed materials, and recorded field notes. Through these means, I concluded that the students' awareness of what it means to be a working citizen was broadened. The major learning goals met were students are able to manage money, understand how to write a check and pay rent, and contribute positively to our class community.

Poster Presentation ES

CREATING A CLASSROOM COMMUNITY

Erica Needles and Jeanne Koehler*

Educational Studies Department, Illinois Wesleyan University

A rapport must exist between students and teacher in order for any genuine teaching and learning to succeed. Positive relationships in the classroom also aid in classroom management. My self-study was borne of a desire to develop a classroom community where authentic learning can take place. I chose to primarily conduct my research in my Junior Literature Essentials classes. These two classes proved to be the most challenging in terms of gaining the respect of the students and successfully managing to keep students on task. I concentrated on a group of students who have been singled out and placed at a disadvantage by an unjust system. My intent was to use the concept of a classroom community to engage those who felt isolated from the learning experience. I was not prepared for the challenges that often arise when students are comfortable and secure; for example, the sharing of intimate life details. This study was completed using a qualitative self-study and included various data collection methods, such as field notes, student and teacher reflections, observations made by outside sources, and student work. The study demonstrates a positive association between student motivation and constructive relationships formed in the classroom; however, my study was limited by time constraints (I was only able to spend a portion of one semester working closely with the students). Also, it became clear early on in the semester that my cooperating teacher and I adhere to different pedagogies, which created a disjuncture in my research and data collection. My study can benefit from future researchers examining a broader range of grade and ability levels.

Poster Presentation ES

**CULTIVATING THE SKILLED IMAGINATION:
TEACHING GRAMMAR THROUGH CREATIVE WRITING**

Stephanie Nudelman and Jeanne Koehler*

Educational Studies Department, Illinois Wesleyan University

When teachers plan lessons around the mandated secondary English learning standards, consisting of skills in reading, writing, speaking, listening and research and aiming to focus on practical and academic language development, it is difficult to fit creative writing into the structured curriculum. This presentation will examine the need to teach grammar in relation to the benefits of teaching creative writing, an art that necessitates critical thinking skills the standards point toward developing, in an ELL classroom situated in a majority working-class, Mexican immigrant community on the West side of Chicago. Research has shown that encouraging creative writing in the classroom fosters community, confidence, and the use of the individual voice. This paper examines the reinforcement of grammar lessons through creative writing assignments. This study was completed using a qualitative self-study approach and included varying data collection methods such as field notes, informal interviews, student teaching, evaluations, and document gathering. The findings of this study indicate the challenges and potential positive outcomes of both incorporating creative writing into high school English classes and teaching grammar through creative means.

Poster Presentation ES

FURTHERING MATH EDUCATION THROUGH DIFFERENTIATED INSTRUCTION

Amanda Packman and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

During student teaching I observed that my third graders had an array of mathematical abilities and retention levels of math concepts. Differentiated instruction is when teachers respond to the individual needs of students through a variety of strategies. To address my students varied abilities, I incorporated differentiated instruction into the math curriculum. I sought out to study exactly what differentiated instruction in math looks like and which strategies within differentiated instruction improved the students' retention and addresses the varied ability levels. Through differentiated lesson plans, field notes, and student reflections, I conclude that differentiated instruction, when implemented correctly, is a way for teachers to meet students varied learning needs. Since students grasp math in a variety of ways differentiated instruction is a method for teachers to help students learn the material in a way that makes sense to them.

Poster Presentation ES

CREATING A COMMUNITY WITHIN THE CLASSROOM

Kelsey Porter and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

This self-study investigates the creation of a community within a classroom. In this study, a classroom community is defined as a classroom in which students cultivate supportive friendships, feel safe to share, are respectful, responsible, value honesty, and care about each other and their teacher. The following questions were explored:

- “How can I create a community environment within the classroom?”
- “What does a classroom community look like within a fourth grade classroom?”
- “What are the positive impacts that a classroom community has upon students and teachers?”
-

Field notes describe interactions between students and peers and interactions between students and myself. The implementation of lesson plans and class wide programs also help to create community. I conclude that the creation of a classroom community benefits students socially and academically, and the success of the community depends upon a teacher’s implementation of community building strategies

Poster Presentation ES

**INTEGRATING PHYSICAL ACTIVITY IN THE ELEMENTARY CLASSROOM:
HIGH FIVE OR LOW FIVE ON ACADEMIC ACHIEVEMENT**

Alexandra Richardson and Ana Floriani*

Educational Studies Department, Illinois Wesleyan University

Today many schools' budgets are being cut, resulting in physical education programs being dropped. Given the need to meet state standards, schools are replacing physical education with more class work. There have been multiple studies done on Physical Activity and Physical Education and their correlation to academic achievement. Many studies state that there is a positive correlation between physical activity and academic achievement. The purpose of this review is to explore if there is a positive correlation between physical activity and movement and academic achievement in elementary classrooms. Review of the research found that there is no evidence that physical activity has a negative correlation with academic achievement. The conclusion examines other factors that should be examined and suggests that physical activity in the classroom actually raises academic achievement.

Poster Presentation ES

INTEGRATING THE FINE ARTS INTO THE SCIENCE CURRICULUM

Katelyn Robisky and Robin Leavitt*

Educational Studies Department, Illinois Wesleyan University

This inquiry was motivated by my student teaching experiences during which I observed that science wasn't as big of a priority as other subjects. I wondered if by integrating the fine arts, science could be more doable. I wanted to observe whether integrating the fine arts into the science curriculum would help to improve student learning, engagement, and interest in the science curriculum. This self study involved developing and teaching a science unit integrated with the fine arts that was designed to introduce students to habitats. Through my observations, whole class discussion, and individual conferences, I conclude that the fine arts integrated with science can be beneficial in that students are able to creatively express themselves. By using this creativity and expression, students were generally more engaged in learning and had more interest in the science curriculum.

Poster Presentation ES

**LEARNING AND MAKING CONNECTIONS: CONTENT INTEGRATION
ON THE SECONDARY LEVEL**

Rachel Rock and Ana Floriani*

Educational Studies Department, Illinois Wesleyan University

This paper reviews the literature related to content integration in schools. It examines definitions of content integration and describes how it is done effectively. While studies show that content integration is beneficial (ex. better test scores, higher sense of purpose in learning), it primarily only happens at the elementary and middle school levels. This paper reviews numerous current research articles on the topic of content integration, and examines how integration is viewed at the secondary level, why it is not happening more, and how can it happen more frequently. Using the literature available on content integration at the elementary and middle school level, this paper will recommend steps that secondary teachers can take in order to reform their curriculum to include content integration.

Poster Presentation ES

**READERS FOR LIFE: HOW DIFFERENTIATION IN READING AFFECTS
MOTIVATION TO READ**

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In today's elementary classrooms, students are becoming less motivated when it comes to participating in class and to finishing assignments. This lack of motivation is especially prominent in the subject of reading. Students are less likely to develop a love for reading and more likely to only read when required for school. The goal of the study is to examine the relationship between differentiated reading instruction and motivation in the classroom, especially in the area of reading. The literature reviewed comes from a variety of books and journal articles on the subjects of differentiation and motivation. The paper defines differentiation and motivation, explores motivation in the classroom and factors that affect a student's motivation, and looks at the relationship between teachers' efforts in differentiating instruction and the learning environment. Findings of this study include recommendations for how differentiating instruction can help create a motivating classroom environment for students. The study also provides teachers and future educators with concrete examples of how to increase motivation for reading through differentiated instruction.

Poster Presentation ES

**PARENTAL INVOLVEMENT IN ELEMENTARY SCHOOL AND ITS EFFECTS
ON ACADEMIC ACHIEVEMENT**

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The effects of parental involvement have been studied for years but the results have been inconclusive. This paper reviewed the literature in order to determine how parents can best assist their child in achieving academic success. Definitions are presented and measures of parental involvement and academic achievement are compared. The effects of additional factors on parental involvement such as the age of students, the socio-economic status of students, and the types of parental involvement are also been examined. The results of this literature review indicate that the effects of parental involvement on students' academic achievement are reliant upon other factors.

Poster Presentation ES

**INCORPORATING LITERACY STRATEGIES INTO THE FRESHMAN
LITERATURE AND COMPOSITION CLASSROOM**

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In the era of No Child Left Behind and schools needing to meet Adequate Yearly Progress, the issue of reading comprehension has become a top priority in today's educational world. One method in particular being used to combat the growing illiteracy among our nation's children is the incorporation of literacy strategies into the study of reading. My study provides one example of the inclusion of two specific literacy strategies, summarizing and connecting, and how teaching these strategies impacted the reading comprehension in my freshman literature and composition classroom. This study was completed using a qualitative self-study approach, and included varying methods of data collection such as field notes, student feedback, and collected student work. Research shows students benefit from the incorporation of these strategies. The findings of this study provide insight into how a student teacher such as myself can incorporate literacy strategies into teaching methods and how the inclusion impacts my students' continued learning and reading comprehension. These findings are important to the educational field, as research into active incorporation of literacy strategies at the secondary level coupled with the inclusion of such strategies during student teaching are limited.

Oral Presentation ES

**LESSON STUDY: A COLLABORATIVE PROCESS OF IMPROVING INSTRUCTION
AND FACILITATING STUDENTS' MOTIVATION**

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Current research studies on student motivation support positive correlation between increased engagement in the classroom and academic success. However, many researchers such as Bednar (2002) note that low motivation and achievement in mathematics is a growing concern. We conducted a *lesson study* to investigate how we can engage students in learning mathematics and what can we do to improve instruction. Our research lessons consisted of six co-planned lessons taught using different teaching techniques. We content analyzed responses from student questionnaires, notes from post-teaching discussions, and narratives from our teacher journals. Our analyses show that non-traditional methods of instruction are more motivating for students and the way we present the material to students have some bearing on students' perceptions of the mathematics being taught. Finally, lesson study is a powerful collaborative process of learning how to teach and improving a lesson, unit, subject matter, and students' motivation to learn.

Poster Presentation ES

**THE LIGHT BULB LAB: A CREATIVE WRITER'S WORKSHOP-
INTEGRATING THE FINE ARTS AND FICTION INTO SECOND GRADE
LITERACY CURRICULUM**

Ariana Wilkey and Robin Leavitt*

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This self-study was motivated by my passion for reading, writing, and the fine arts. My goal was to incorporate the fine arts into second grade literacy curriculum to encourage students to become more enthusiastic about their writing. I developed and taught lessons designed to encourage students to approach writing with a playful and creative attitude. I prompted student writing through activities inspired by the fine arts. The activities ranged from listening to Beethoven's music to exploring the magical lands of Dr. Seuss.

Throughout my study I collected extensive field notes, audio recorded student feedback, and student work. I conclude that the creative writer's workshop permits one-on-one writing conference time, encourages students with low self-confidence to find pride in their work, celebrates creative and critical thinking, and promotes students' passion for writing.

Poster Presentation ES

**SHYING AWAY FROM QUESTIONING: DISCOURSE AND PARTICIPATION
IN MATHEMATICS CLASSROOMS**

Sarah Wilson and Leah Nillas*

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Classroom discourse is a well researched instructional practice that has yet to be incorporated into many mathematics classrooms across the United States. Research has shown that “78% of mathematical content is taught without discourse activities or incentives” (Forrest, 2008, p. 23). My goal for this self-study was to investigate my questioning and discourse practices as well as the role of students’ participation in discourse in relation to their mathematical understanding. I conducted research in one geometry and two algebra 1 classes which consisted of approximately fifty five students from a local high school. Through several surveys, video-taped lessons, and various exit slips, I found trends on discourse techniques, student comfort, and overall academic comprehension. Students’ understanding was strengthened by discourse activities that were carried out in a classroom environment in which students felt comfortable conjecturing and explaining ideas.

Poster Presentation ES

SELF-STUDY INQUIRY IN INDIVIDUALIZED INSTRUCTION

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Students learn in different ways and at different levels. To meet the needs of all students, effective teachers incorporate learning preferences and differentiated instruction into daily lessons. With this knowledge of effective teaching, we incorporated these principles during our student teaching experience. This study was completed using a qualitative self-study approach and included varying data collection methods such as learning style inventories, field notes, relevant assignments, student work, and student teaching evaluations. Throughout our student teaching experience, we found that a consciousness of students' ability levels and learning preferences influenced their engagement with the material. However, we noticed two tensions. Offering students a variety of assignment options sometimes causes some students to work more strenuously than others to receive the same grade. Also, learning style inventories do not provide a full insight into learning preferences. Overall, planning lessons with attention to learning preference and differentiation is an effective practice, and we will continue to research ways to bring these strategies into our classrooms.

Poster Presentation ES

**PROMOTING ACADEMIC AND SOCIAL SUCCESS BY CREATING A POSITIVE
LEARNING ENVIRONMENT**

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In my study I aimed to investigate how to create a classroom environment that is caring and encourages academic higher learning. Additionally, I explored how such a classroom impacts the social and academic success of students. The study is a result of the ongoing development of a learning environment during my student teaching experience. In regards to classroom environment, I focused on teacher-student relationships and classroom management strategies. Through the initial and ongoing creation of a classroom, close observation, and extensive reflection, I discovered the effects relationships and management style have on students and their learning environment. I conclude that forming a relationship with each student based on trust, genuine interest, and support allows students to feel more comfortable taking academic and personal risks in the classroom. My research exposed me to a variety of management styles and allowed me to reflect on which is the most effective for me and my students, as well as gain ideas for my future as an effective educator.