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**4th Annual Symposium on Graduate Research and
Scholarly Projects and 8th Annual Undergraduate Research
and Creative Activity Forum: Program and abstracts**

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PROGRAM and ABSTRACTS

4th Annual Symposium on Graduate Research and Scholarly Projects

8th Annual Undergraduate Research and Creative Activity Forum



April 25, 2008
Eugene Hughes Metropolitan Complex

David M. Eichhorn, GRASP Chair
D. Paul Rillema, URCAF Chair

2008 GRASP Symposium

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George Dehner, Assistant Professor, History (LAS_Humanities)
Anthony DiLollo, Assistant Professor, Comm. Sci. and Disorders (Health Prof.)
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2008 URCA Forum

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4rd Annual Symposium on
Graduate Research and Scholarly Projects (GRASP)

8th Annual
Undergraduate Research and Creative Activity Forum
(URCAF)

PROGRAM GRID

(Note: All Break/Poster Sessions are in Gymnasium)

Opening Session in Lowe Auditorium		
8:00 – 8:30	Registration	
8:30 – 8:45	Opening Remarks –Dean Kovar, Provost Miller Associate Dean Eichhorn, Professor Rillema	
8:45 – 9:15	Keynote Address – Dr. Ada Sue Hinshaw, U. of Michigan <i>Research at Work Changing Health Care</i>	
9:15 – 9:30	Refreshments and Poster Viewing in Gymnasium	
	GRASP	URCAF
9:30 – 10:30	Session 1 - Room 185	
9:30 – 10:30		Nat Sci. / Eng. - Rm. 132
10:30 – 10:45	Break/Posters	
10:30 – 11:30		Soc. Sci. Rm. 132
10:45 – 12:05	Session 2 - Room 185	
11:30 – 12:30		Fine Arts/Business Rm. 132
12:05 – 1:00	Lunch/Poster Viewing in Gymnasium	
1:30 – 2:15		Awards Room 132 Assoc. Provost McDonald
1:00 – 2:30	Session 3 - Room 185	
2:30 – 2:45	Break/Posters	
2:45 – 3:35	Session 4 - Room 185	
3:35 – 4:15	Break/Posters	
4:15 – 5:00	Awards – Room 132 President Beggs	

The URCAF and GRASP organizers are indebted to the following people for serving as judges in the competitions:

URCAF

Elizabeth Behrman, Physics
Brien Bolin, Social Work
Robert Bubb, Art and Design
Francis D'Souza, Chemistry
Curt Friehs, University Libraries
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Mike Rogers, Human Performance Studies
John Watkins, Electrical and Computer Engineering
Cam Wilson, Physical Therapy
Christian Wolf, Mathematics and Statistics

URCAF ORAL PRESENTATIONS

URCAF Natural Sciences and Engineering Session, Moderator Jeremy Patterson

- 9:30 **C. A. Chambers**, "Identification of Mirnas Expressed in Arabidopsis Pollen Using Mirna Array Technology" Pg. 10
- 9:45 **L. Hatfield**, "Determining Appropriate Baseline Measures of Behavior in *Bufo Woodhouseii*" Pg. 10
- 10:00 **J. Marshall, F. Tobon and Gladys Collins**, "Improvement of Mobile Unit Loading At American Red Cross" Pg. 11
- 10:15 **B. Oney**, "The Productivity of Overtime" Pg. 11

URCAF Social Sciences Session, Moderator Jeremy Patterson

- 10:30 **F. Lee**, "Assessing the Health Behaviors of Emerging African American Adults" Pg. 12
- 10:45 **P. Pettis**, "Assessing the Behaviors, Attitudes and Perceptions of Men Who Have Sex With Men Regarding HIV/AIDS" Pg. 12
- 11:00 **T. Schultz**, "Scale Implications For Confidence Elicitation" Pg. 13
- 11:15 **T. Maddox**, "Facebook Friends: Best Buds, Mere Acquaintances and Complete Strangers; How "Friends" Have Evolved?" Pg. 13

URCAF Fine Arts and Business Session, Moderator Jeremy Patterson

- 11:30 **K. Mims**, "Countries' Perceived Level of Corruption VS It's Level of Inflation" Pg. 14
- 11:45 **R. Harries**, "Signs and Wonders: Evangelist Symbols and The Development of Early Christian Orthodoxy" Pg. 14
- 12:00 **S. Kramer**, "The True "Solomon": The Ecclesiastical and Political Personas of Saint-King Louis IX" Pg. 15
- 12:15 **A.Boone**, "Intellectual 'Property'" Pg. 15

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- 9:30 B. Baril, B. Bivens, L. Brown and **J. Travis**, "The Effects of Generalized Joint Laxity and Shoulder Joint Laxity on Shoulder Joint ROM" Pg. 16
- 9:40 **D. Kerstetter**, "Spectroscopic Investigation of Hydrogen Atom Transfer in the McLafferty Rearrangement" Pg. 16
- 9:50 **A. Paul**, "Attitudes of Kansas Primary Care Physicians Toward Mandatory Human Papilloma Virus Vaccination of Adolescent Girls: A Pilot Study" Pg. 17
- 10:00 **J. Christensson**, "Forecasting the Sales of Light Trucks in the United States" Pg. 17
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- 10:55 **J. Bullinger**, "Recent Advances in Cyanoscorpionate Chemistry: Complexes with Co(II), Mn(II), Ni(II)(cyclam)" Pg. 19
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- 11:15 **A. Mohr** and E. Wegner-Busch, "Utilization of Pharmacists during Trauma Resuscitation in Level I and II Trauma Centers: A National Survey" Pg. 20
- 11:25 **Z. Li**, "Simulation-based Decision Making for Maintenance Policy Selection of Complicated Systems" Pg. 21
- 11:35 **K. Eaves**, "Where is the Love? How Parenting Magazines Discuss the Mommy Wars and Why it Matters" Pg. 21
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Identification of Mirnas Expressed in Arabidopsis Pollen using Mirna Array Technology

Carrie Chambers and Bin Shuai,

Department of Biological Sciences, College of Liberal Arts and Sciences

Pollen plays an important role in plant production. During pollen development, each grain is developed in the anther from pollen mother cells through a combination of meiosis and mitosis. Pollen grains contain the genes necessary for pollen germination, pollen tube growth, as well as interactions between the pollen grain and the female reproductive organ. In this perspective, an understanding of gene regulation in pollen is imperative component of an understanding plant reproductive biology. Plant reproduction is quickly becoming a field of necessity when one considers the potential move from petroleum based fuels to biofuels. One of the questions of interest is how gene expression is regulated in pollen. This research project is geared towards examining the post-transcriptional regulatory pathway, especially RNA silencing pathways, also known as RNA interference (RNAi), in regulatory gene expression in mature pollen grains. Here we focus particularly on a type of small RNSs called microRNAs (miRNAs) expressed in mature pollen. MiRNAs are encoded by an organism's genome, and are primarily involved in regulating gene expression in developmental processes. To determine the miRNAs that are present in pollen, we have conducted a miRNA array experiment using miRCURY LNA array from Exiqon. The array experiments, performed by Exiqon using total RNAs extracted from mature pollen and inflorescence samples, have indicated that there are over 20 known miRNAs that are differentially expressed. These experiments provide the first insight regarding miRNAs. Further experiments are planned to examine the function of these miRNAs and look for potential new pollen specific miRNAs.

Determining Appropriate Baseline Measures of Behavior in *Bufo Woodhouseii*

Lindsay Hatfield and Karen Brown Sullivan, (Faculty Mentor)

Department of Biological Sciences, Fairmount College of Liberal Arts and Sciences

With global amphibian populations in decline, an increased number of studies have emerged examining the roles of various chemicals of anthropomorphic origin. Several of these studies have shown that exposure to ecologically relevant concentrations of these chemicals can cause changes in behavior. An important preliminary step in determining sub-lethal impacts on behavior is to examine the baseline behavior for the species in question. In this study, behavioral data for the anuran species *Bufo Woodhouseii* (Woodhouse's Toad) was analyzed. To collect data specifically related to aggregative behavior, tadpoles were filmed in groups of six, using Biobserve software with a Social Contact plug-in. There were four study treatments: the first study treatment examined interactions among 6 tadpoles of similar small size and early metamorphic stage; the second study treatment examined 6 tadpoles of randomly selected size and metamorphic stage; the third study treatment examined 6 tadpoles of similar large size and late metamorphic stage; the fourth and final study treatment examined 6 tadpoles similar to the second group, but exposed to a conspecific predator cue. Each film lasted for 10 minutes; multiple groups were filmed for each treatment. Distances between animals at 20 second intervals were obtained. We saw stage differences in the behavior of *Bufo Woodhouseii* tadpoles and that larger animals tend to aggregate less tightly. The data also suggests that there is a measurable behavioral response to con-specific predator cue, and that animals seem to scatter after exposure rather than to aggregate more tightly.

Improvement of Mobile Unit Loading at American Red Cross

Jennifer Marshall*, Fabio Tobon, Gladys Collins and Larry Whitman
Department of Industrial and Manufacturing Engineering, College of Engineering

Wichita Red Cross currently has a supply warehouse that stocks and dispatches all of the donation vehicles that are used for collections in the Kansas and northern Oklahoma region. In order to meet the increased blood collection demand, a new, larger warehouse is being built, where improvement efforts will be focused. The purpose of this project is to reduce the overall cycle time of loading vehicles by improving material handling, determining optimal facility layout, and increasing the safety of employees. The project was divided into two main improvement areas: facility layout and ergonomics. The approach was to observe each improvement area, collect data, perform the appropriate engineering analysis, followed by making recommendations. To determine the optimal facility layout, cost analyses were done on each alternative. The NIOSH lift equation was used to determine degree of risk for three potentially hazardous tasks.

The facility layout analysis resulted in the development of two alternative layouts. The first layout was determined to be optimal, with its implementation giving a total yearly savings of 3,655,200 feet of walking and \$9,452.00. The ergonomic study showed NIOSH scores for the three tasks to be “moderate and high” risk. Suggested improvements lower the risk. By implementing the suggested recommendations, the loading cycle time will decrease by 50% (90-45 minutes).

The Productivity of Overtime

Brian K. Oney and Larry Whitman
Department of Industrial and Manufacturing Engineering, College of Engineering

This study examines research on the use and productivity of overtime in the manufacturing, service, and construction industries. This includes a look at applications of simulation for determining optimal overtime in a manufacturing facility. This study uses statistical software to produce an optimal solution for overtime and headcount in a real-life manufacturing facility. Minitab and Excel Solver are used to determine solutions for each of the facility’s departments and then the feasibility of these solutions is tested. The study finds that only one solution can be considered a fair assessment of the situation, for which a comparison is drawn between the current situation and the suggested solution, in terms of overtime and head count. The study proposes that more research is necessary to determine what variables actually attribute an appreciable amount to the output of this specific manufacturing facility. Furthermore, the study realizes that some overtime may be necessary, but that it may also exist simply as company culture.

Assessing the Health Behaviors of Emerging African American Adults

Felecia Lee and Rhonda Lewis-Moss

Department of Psychology, Fairmount College of Liberal Arts and Sciences

This presentation will present preliminary findings from a sample of emerging African American adults. The purpose of the research was to assess the health behaviors of the African American population aged 18-25. This emerging population is often ignored because it is difficult to locate where they are in a community and capture their thoughts and experiences. A convenience sample was used to gather information. Participants were recruited from the Wichita community and from Wichita State University. The survey consisted of demographics, mental and physical health questions and substance abuse. The results showed that African American emerging adults reported low levels of depression and no other mental disorders such as (bi-polar). In regards to substance use, participants reported low substance use levels which is contrary to national reports concerning this population. Participants did report using alcohol and a fairly large percentage (44%) of participants under the legal age to use alcohol reporting drinking. Although the sample size was small, the information acquired actually contradicted current national trends and beliefs concerning this population. Limitations and future research will be discussed.

Assessing the Behaviors, Attitudes and Perceptions of Men Who Have Sex with Men Regarding HIV/AIDS

Philip Pettis and Rhonda Lewis-Moss, (Faculty Mentor)

Department of Psychology, Fairmount College of Liberal Arts and Sciences

Since the onset of the HIV/AIDS epidemic, MSM (men who have sex with men) have been disproportionately affected. It is important to understand the contributing factors that have lead to the spread of HIV in this population and design effective prevention measures. The purpose of this study will be to assess the behaviors, attitudes and perceptions of gay men living in the Midwest to determine what factors are putting them at risk for HIV/AIDS infection. Current researchers were interested in if there was an association between HIV/AIDS status and race with the following questions: 1) How good the participants felt about themselves 2) If participants believe that the negative aspects of HIV/AIDS have decreased due to advancements in HIV/AIDS treatment. Fifty MSM participated in the study. A survey titled "Health Assessment" was distributed to participants. Results indicated that majority of participants in spite of race or HIV/AIDS status felt good about themselves. Results indicated that majority of participants did not believe that the negative aspects of HIV/AIDS have decreased due to advancements in HIV/AIDS treatment. Future research and limitations of the study will be discussed.

Scale Implications for Confidence Elicitation

Tara Schultz and Ed Merkle

Department of Psychology, Fairmount College of Liberal Arts and Sciences

Confidence judgments are important in applications such as medical diagnosis and eyewitness identification, where we are interested in a person's certainty of making the correct choice. A common finding in confidence research is that people are overconfident: they overestimate the probability that their choices are correct. One problem with confidence research, however, is that the scale on which judges report confidence can have an adverse impact on the results. The purpose of the current study was to solve this problem through the use of a new confidence scale. WSU undergraduates completed a 30-question multiple choice test on general financial knowledge. For each question, participants chose a correct answer and reported confidence in their choice. Experimental groups differed in the confidence scale that they used throughout the test. One group reported confidence on a 0-100% scale, which is typical of previous research. The second group reported confidence using any number they wished, with smaller numbers indicating less confidence. Results indicate that the latter scale leads to confidence judgments that are more predictive of correct answers. These results have implications for the use of confidence in the real world.

Facebook Friends: Best Buds, Mere Acquaintances and Complete Strangers; How "Friends" Have Evolved

Todd Maddox and Amy Matson Lauters

Elliott School of Communication, Fairmount College of Liberal Arts and Sciences

1. What exactly is a "friend" on Facebook?
2. We will be creating a group on the social networking website Facebook in order to pose questions (see attached "questions") to users of the website as to what they consider to be a "friend" and why. We will be compiling the responses received to qualitatively through textual analysis, gauge members responses to gain a better understanding of how social networking and online communities can potentially change the definition of friends.
3. I am still in the process of getting results in over the questions listed but I expect we will find that there is quite a variety of reasons that people have "friends" on Facebook and other social networking websites. The research will run through mid-April at which point all of the responses will be compiled and used to complete the research paper on the subject.
4. In conclusion, I think that the evolution of the word "friend" and its meaning will be changed by the invention of social networking websites. How the definition has changed and to the extent of which it has become more lenient as well as how long this effect may have on the population as a whole is yet to be determined. This will shed light onto this subject will hopefully bring about more understanding about the users of these networks mindsets and how they have been changing this previously unconscionable question, "what is a friend?"

Countries' Perceived Level of Corruption vs It's Level of Inflation

Kevin Mims and Jen-Chi Cheng

Department of Economics, Barton College of Business

My research sought to find a correlation between countries' perceived level of corruption vs. the same country's level of inflation. I first defined corruption using a simple agency model showing where agents can inflate the price that owners pay for goods. Transparency International's Corruption Perception Index measures a country's perceived level of corruption based on seven basic surveys. A country is only included if the country supplied four of the seven surveys. Though there may be other countries in the world that are more corrupt than the countries included in their findings, the countries left out did not have enough information available to make their measurable level of corruption robust enough to be included. The measurements I used for inflation were gleaned from the World Bank website. I show a positive relationship between corruption and inflation in a sample of ~55 countries over 10 years, 1997-2007. By running a regression on this data, an economically significant conclusion can be reached: a one standard deviation increase in inflation from the median can lead to an increase in corruption of 12-percent of one standard deviation. This suggests that by increasing or decreasing inflation in a country, one can directly influence corruption in the same direction.

Signs and Wonders: Evangelist Symbols and The Development of Early Christian Orthodoxy

Ruth Harries and Annette LeZotte,

Department of Art History, School of Art and Design, College of Fine Arts

The early development of evangelist symbols is a subject that raises interesting points about the maturation of Christian iconography in the late antique and early medieval periods. Regarding this topic, it is important to address how the development of evangelist symbols reflected early Christian orthodoxy, as well as what ideological issues faced by the early Christians were reflected in the iconography they developed. By probing some of the issues discussed at ecumenical councils and by examining the contexts and subtexts of early artistic depictions of the evangelists, I hope to address the relationship between the development of Christian orthodoxy and Christian iconography. One way to track the establishment of uniform Christian doctrine is to look at the use of evangelist symbols. Because these symbols were taken from imagery in both the Old Testament and the New Testament, they were perfect for Christians who wanted to gain credibility by emphasizing the links between the established canon of sacred Hebrew texts and the new canon of Christian texts. The evangelist symbols' ties to the gospels and New Testament were also useful to Christians who wanted to emphasize and support the idea of Christ's dual nature. Although there is no conclusive evidence that the early Christians consciously used the evangelist symbols for these specific purposes, tracking the adoption and use of evangelist symbols is a useful way to analyze the development of the Christian orthodoxy.

The True “Solomon”: The Ecclesiastical and Political Personas of Saint-King Louis IX

Sean Kramer and Annette LeZotte

Department of Art History, School of Art and Design, College of Fine Arts

In this project, I proposed to ascertain the relationship between the ecclesiastical nature of Saint Louis (King Louis IX of France) and his role as a political figure in history. I accomplished this through in depth research of artistic representations and architectural commissions of the saint-king throughout the Gothic period. I consulted numerous primary sources, such as manuscript illuminations and sculptural works, as well as secondary sources, such as books and journal articles in pursuit of this goal. As a result, I found that a close connection existed between the roles of Louis IX as both saint and king. Most works of art depicted him in both roles. The title of an essay even refers to Saint Louis as a greater incarnation of King Solomon, linking him with a Biblical ruler renowned for his wisdom and prosperity. Such a practice was common in political artwork from the Middle Ages, which often made allusions to kings or prophets in the Bible in order to advance ideas of piety and the notion of divine sanction on the part or their own rulers. The inference here then, is that King Louis IX and many of his successors used his religious affiliations to further his reputation and political standing, as well as that of the entire French dynasty. My presentation at the Undergraduate Research and Creative Activity Forum will summarize my findings through the exploration of case studies of the Royal Chapel of Ste. Chapelle and the illuminated manuscript of the *Hours of Jeanne d'Evreux*.

Intellectual "Property"?

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The proliferation and dissemination of knowledge and ideas, both technological and cultural, has been occurring at an accelerating rate since the dawn of humanity. This process has been revolutionized many-fold by breakthroughs in information relay such as writing, later the printing press, and now the computer. The advent of the computer effectively divorced the physical constraints of time and space from information propagation and enabled it the potential to be duplicated and transmitted instantaneously at virtually no cost. This perhaps more than anything else has provoked much of the contemporary debate over the legalities of intellectual property. This form of property includes patents, copyrights, trade secrets, and other legal constructs that authorize and protect ownership of ideas and knowledge. Yet in a world where existing ideas and knowledge can be so readily and infinitely duplicated, boundaries of ownership on intellectual property are becoming even more difficult to fairly assess. On one extreme, critics of intellectual property argue that it should not be a form of property at all, citing that copyrights and patents are antithetical to basic market principles, are monopolistic, and deter innovation.

Proponents of intellectual property, on other hand, argue that it actually encourages innovation, motivates entrepreneurial activity, and necessarily yields many ethical, practical, social, and economic benefits. The issues and arguments such as these surrounding intellectual property will be examined here.

The Effects of Generalized Joint Laxity and Shoulder Joint Laxity on Shoulder Joint ROM

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There has been considerable research on the overhead athlete concerning shoulder biomechanics and the resulting pain and injuries that develop, however, there are limited studies specific to swimmers. Swimmers are of interest because they appear to require greater shoulder mobility for efficiency in competitive swimming techniques. Our study focuses on uninjured, young competitive swimmers and the biomechanics of the uninjured shoulder. This study will examine the relationship between the inferior sulcus test and the Beighton Mobility Scale. We will also investigate if a correlation exists between laxity, as measured by these scales, and shoulder range of motion. Our subjects will be adolescent volunteers from a local swim club with a variety of years experience. The Beighton Mobility Scale, bubble inclinometer, and inferior sulcus test will be utilized to measure generalized joint laxity, shoulder range of motion and shoulder joint laxity respectively. We anticipate that our results will indicate a strong direct correlation between the Beighton Mobility Scale and the inferior sulcus test. We are also anticipating a strong direct correlation between generalized and shoulder joint laxity and shoulder range of motion. For data analysis comparing each hypothesis, a Pearson Product Moment Correlation will be used.

Spectroscopic investigation of hydrogen atom transfer in the McLafferty rearrangement

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In this study, wavelength-selective infrared multiple-photon photodissociation (IRMPD) was used to study the transfer of an H atom in a gas-phase unimolecular rearrangement reaction. The reaction studied was the McLafferty rearrangement, which involves transfer of a γ -position hydrogen atom to a carbonyl oxygen atom through a cyclic intermediate, followed by the elimination of an alkene. The IRMPD experiment allows for the collection of vibrational spectra of discrete gas-phase ions, which can then be compared to those predicted using density functional theory calculations to assign accurate composition and structure. For the experiment, the *tert*-butyl ester of a model peptide, nicotinic acid-glycine, was incubated in a mixture of deuterium oxide and deuterated methanol. This solution was the used to make ions by electrospray ionization. The McLafferty rearrangement was then induced by collision-induced dissociation. Following rearrangement, the product ion, consisting of the model peptide with 2 deuterium atoms and 1 H atom in exchangeable sites, was investigated by IRMPD. The specific aim was to use vibrational spectroscopy to determine which exchangeable site (of the three) ultimately receives the H atom. The infrared spectrum produced clearly shows that the H atom is transferred to the C-terminal acid group and no migration to amide positions occurs on the time scale of the experiment. This study represents the first infrared spectroscopic study of the McLafferty rearrangement, a prototypical unimolecular dissociation reaction, and more importantly, hydrogen atom transfer in a gas-phase dissociation reaction.

Attitudes of Kansas Primary Care Physicians toward Mandatory Human Papilloma Virus Vaccination of Adolescent Girls: A Pilot Study

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Introduction: In 2006 the FDA approved Gardasil, a vaccine protecting against the four most common strains of HPV, which are accountable for 70% of cervical cancers. It is recommended by the CDC for females ages 9-26. Several states, including Kansas, have proposed legislation to mandate vaccination of adolescent females. This study was done to determine the attitudes of Primary Care Physician's (PCPs) in Kansas toward mandatory vaccination. Methods: 1,200 PCPs in Kansas were surveyed; 36% responded. Questions addressed factors that could influence attitudes regarding mandatory legislation, such as knowledge about the vaccine, cost, effects on safe sex practices, promiscuity, and screening pap smears. Results: 88% of respondents were comfortable with their current training and education level regarding the vaccine. 46% would not support mandatory vaccination of adolescent females, 30% would support it, while the remaining 24% were unsure. Of the 46% who would not support legislation, 39% stated cost as a factor. 96% of the respondents would recommend Gardasil vaccination to at-risk females. Conclusions: Findings indicate that, while the majority of Kansas PCPs who responded to the survey would recommend HPV vaccination to at-risk females, almost half would not support legislation requiring mandatory vaccination.

Forecasting the Sales of Light Trucks in the United States

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The motor vehicles and parts industry in the United States employed as many as 7.4% of the labour force in the manufacturing industry in 2006. There is no doubt that the automobile industry in the United States is one key factor to growth, therefore the forecast of the sales of automobiles may give an indication of the economic future in the United States. The purpose of this paper is to canvass various forecasting models, determine the optimal forecasting model and then forecast the sales of light truck sales. A secondary purpose was to investigate the relationship between the gasoline price and the sales of light truck sales.

The specific models considered are the time series model, including trend, seasonality, and cycles; VAR(p); ARIMA(p,l,q); regression; various smoothing techniques; and lastly the ARCH/GARCH model. The 'root mean square error' (RMSE) was considered to assess the optimal forecasting. The model experiencing the lowest RMSE was found to be the ARCH(1) model. This model takes into account two additional variables; the gasoline price and the sales of regular cars. The forecast revealed that the sales of light trucks will begin to slowly decrease over the next few years. Furthermore, the regression model indicates that the gasoline price is significantly related to the sales of light truck sales. As the gasoline price increase by 1% the sales of light truck sales decrease by 0.18%, ceteris paribus.

Operational Method for minimization of energy consumption and total tardiness on a single machine

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A lot of energy is consumed in industry by machines standing idle. This waste of energy could be avoided by incorporating energy consumption into consideration while making the scheduling decisions which optimize objectives such as total tardiness. A greedy randomized adaptive search procedure (GRASP) metaheuristic is proposed to solve the resulting multiobjective optimization problem. The decision maker will be able to choose a production scheduling plan based on his/her preference among a set of non-dominated solutions given by the metaheuristic.

Objectivity: tool of the trade

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American press both praises and stumbles upon objectivity. This study tries to close this gap by providing communication professionals and academia with a definition that understands objectivity, not as a set of stable standards, but as a collection of flexible practices journalists used to maintain their power in society. Additionally, its findings also offer guidelines for a training of the future journalists. Development of objectivity in American journalism identifies three elements of the phenomena: balanced representation of all sides, fairness of the representation, and factuality. History confirms that none of those elements were applied consistently: Penny press emphasized nonpartisanship, 1920s to 1950s proposed strict separation of opinions and facts, political instability in the late 20th century introduced representation of all sides, and current international wars and the rise of the Internet have brought loose application of objectivity. Today's decrease in circulation of the daily newspapers indicates that power of the press is in danger, which urges for, what some scholars would call, "re-thinking" of objectivity. This study asks in what ways today's mainstream journalists practice objectivity? The research used content analysis of 123 articles from Wichita Eagle that covered gubernatorial elections from 1994 to 2006. The codebook tested all three practices: balance, fairness, and factuality. The analysis attempts to show that journalists are inconsistent in applying objectivity, usually don't separate their opinion from facts, and still try to proportionally represent all sides of an issue.

Quadriceps torque production after 30 second stretch versus no stretch

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Introduction: Traditionally, stretching is used as part of a warm-up to increase flexibility in an attempt to promote better performances. However, the results of some previous research have shown that passive muscle stretching can diminish the peak force output of subsequent maximal concentric contractions of the quadriceps. Athletes competing in sports requiring explosive contractions such as discus, high jump, sprinting, and power lifting would benefit from knowing proper stretching methods. Our hypothesis states that static stretching would cause decreases in peak torque and mean power output due to the stretch-induced changes in the muscle fibers of the quadriceps. The purpose of this study was to determine the effects of static stretching on peak torque production of the quadriceps. **Methodology:** Subjects consisted of 50 healthy male and female Wichita State University students 20 to 29 years of age. Isokinetic quadriceps maximum torque of the subject's dominant leg was measured before and after a 30-second static stretch. **Data Analysis:** Data will be computed using the paired t-test to determine if there is a mean difference between the paired observations.

Recent Advances in Cyanoscorpionate Chemistry: Complexes with Co(II), Mn(II), and Ni(II)(cyclam).

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In the past, electronic and magnetic materials have been atom based materials made up of metals or metal-oxides. Functionally, these atom based materials are extremely efficient, however, they are very expensive to synthesize, very heavy, and possess limited flexibility. These properties limit the applications of traditional atom based materials where expense, weight, and flexibility are issues. Molecule based materials contain individual molecules which are inexpensively synthesized and made from predominantly light weight carbon, hydrogen, nitrogen, and oxygen. Coordination polymers containing transition metal centers with organic ligands can provide both electronic and magnetic properties as well as allow for light-weight and flexible molecule based materials. We have been investigating the synthesis of cyanoscorpionate ligands as components of coordination polymers. Over the last several years, our group has been investigating trispyrazolylborate (Tp) ligands containing the CN substituent in the 4-position of the pyrazole ring. The cyano group has a strong electron-withdrawing character, as well as the ability to coordinate to the metal. This allows the scorpionate to form various coordination polymers in which two cyanoscorpionate complexes are bound to the metal ion through the cyano group. In this paper we present recent work in this field, including the synthesis and structural characterization of complexes in which the cyano groups are coordinated to a central metal atom. These complexes represent the first step towards the synthesis of two-component coordination polymers involving this ligand class.

Validity of field measurements for body composition

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There are numerous methods of assessing body composition with field measurements. Many of these are becoming popular among professionals in the fitness industry and in the general population. However, the validity of many field measurements remains uncertain. Purpose: This study was designed to test the validity of field measurements for body composition against the standard laboratory measurement. Methods: Seven college aged participants (3 male: 4 female) were recruited to be part of the study. Participants were measured for % body fat by three methods: dual-energy x-ray absorptiometry (DXA), skin-fold calipers, and Tanita bio-impedance scale. Field measurements were recorded in duplicate staggered by 7 days. All field measurements were performed and recorded by an experienced technician. DXA values were recorded within the same week as the first set of field measurements. Statistics: Simple ANOVA was performed for differences between all groups. Differences between each field measurement and DXA were further analyzed by paired t-tests. Results: Early findings show a trend toward under-estimating body fat in the field measurements. However, this study is still in progress. The expected date of completion is December 2007. Conclusion: Preliminary findings from this study suggest that when body composition field tests are compared to the laboratory standard (DXA) there is a significant error in values reported by the common field devices.

Utilization of Pharmacists During Trauma Resuscitation in Level I and II Trauma Centers: A National Survey

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Background: The role of the pharmacist continues to evolve beyond traditional retail pharmacy. More pharmacists are being utilized as members of clinical hospital inpatient management teams. Anecdotal evidence suggests that an emerging role for pharmacists is as part of trauma resuscitation teams, however recent census data has not captured this information. The purpose of this study was to determine the prevalence of pharmacist utilization as trauma resuscitation team members at U.S. Level I and Level II trauma centers. *Methods:* A survey was designed and mailed to US trauma centers to investigate the prevalence and characteristics of pharmacist utilization in trauma resuscitations. *Results:* 52.9% (246) of 465 US trauma centers completed the survey. Almost 25% of the respondents are currently utilizing pharmacists in trauma resuscitations, while an additional 11.4% were considering pharmacist utilization in the future. Duties and responsibilities reported to be performed by pharmacists during trauma resuscitations focused mainly on calculation of medication dosage, medication preparation and utilization as an information resource to other clinicians. *Conclusion:* Pharmacists are being utilized as members of trauma resuscitation teams. Additional research is indicated to determine if pharmacist participation in trauma resuscitation is an effective utilization of critical resources.

Simulation-based Decision Making for Maintenance Policy Selection for Complicated Systems

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This paper investigates the performance of degrading systems under structural constraints applying discrete event simulation. The maintenance polices under consideration for such system are minimum repair, failure replacement and preventive maintenance. The system performance is measured in terms of system steady sate availability, and the best maintenance policy is chosen with the highest steady state availability. Unlike many methods formulating the maintenance problem as Markov processes by assuming exponentially distributed mean time to failure and mean time to repair, the simulation model can deal with most time distributions such as Weibull and Lognormal, which are more practical in real application. Due to the intractability of Markovian formulation and the ease of obtaining performance indices by simulation, the simulation method proved to be an effective tool to facilitate decision making in practical application. The simulation model is validated by comparing simulation results with analytical results obtained from a Markovian formulation.

Where is the Love? How Parenting Magazines Discuss the Mommy Wars and why it Matters

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In 1990, *Newsweek* coined the phrase “mommy wars” to describe the cultural tug-of-war between women who stay at home to care for children and women who work outside the home. Since then, numerous books, newspaper columns and television segments have addressed the same issue; why working mothers view stay-at-home mothers as lazy and uninteresting and stay-at-home mothers think working moms are selfish, materialistic, and too busy for their kids. This study uses a critical discourse analysis to examine how *Parents* magazine has addressed the “mommy wars” since the initial article in *Newsweek* gave the discussion a name. Each issue of the magazine, beginning with June 1990 and ending with December 2006, was analyzed for articles addressing the issues of women who work, women who stay home, the conflict between women who work and women who stay home, childcare, part-time work and maternity leave. A total of 54 relevant texts were identified. Articles focusing on reader questions were not included in the analysis. It found that discussion of the “mommy wars” and the larger social issues at play with regard to women in the workforce were addressed infrequently, but uncovered numerous themes present in the discussion of working and stay-at-home mothers.

Detection of Damage in Metal Lap Joint by Combined Passive and Active Methods

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Fatigue cracks and corrosion damage are critical issues for aircraft, especially for the aging fleet still in use today. The most frequent area of damage is on the aircraft skin, more specifically the joint regions. A structural health monitoring system is being sought after as a system of sensors to detect and localize damage during flight, reducing the amount of time spent in ground inspections and amount of ground inspections overall. Currently, studies from companies and universities are being done, using a variety of different sensing methods, including acoustic emission (AE) testing, ultrasonic testing (UT), and by optical fiber with fiber Bragg gratings (FBG) as strain gages. AE and FBG sensors are passive systems by 'listening' to cracks growth or measuring stiffness change around the crack, respectively. These two methods can be combined to form an active network, checking the other methods in real-time by using guided waves of UT. This study looks at analyzing the abilities of AE and FBG sensors to work as both passive and active systems, comparing results to one another. Due to temperature problems in skewing responses of guided waves, a network of sensors is formed as well to use a correlation in baseline approach, negating this effect, and is tested for fatigue damage on a metal lap joint configuration over cyclic loading. FBG sensors are found to be more directional based and can work in replacing strain gages, while AE sensors can be used well in conjunction with active UT.

In the Shadows of the Big Houses: Non-Elite Settlements at Uxbenká, Belize

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Households inform us about social relationships in ways that public-centered research might exclude. Studies of non-elite settlements are also an excellent way to bring attention to the rich diversity that characterized pre-Columbian society. Surprisingly little is known about Maya commoners despite the recent influx of studies that address the residential areas of sites. Even less work of this type has been done specifically in southern Belize where Uxbenká, the site studied, is located. Uxbenká's settlement system is characteristic of Maya sites, and includes residences, ancillary structures, burials, modified landscape features surrounding the household, and related gardens and agricultural areas. Excavations were conducted in 2007 to assess the temporal occupation and functional use of space at one non-elite residential group at the site. The data collected are compared with other residential excavations conducted at Uxbenká and with other sites aiding in the development of a more comprehensive and contextual view of the occupation of the site. The 2007 excavations and analysis of this residential group settlement offer a fundamental component to our basic knowledge of the site.

Accuracy of pedometer steps and time during Adapted Physical Education for youth with developmental disabilities

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Background: Pedometers are a valid measure of walking behaviors of youth with and without disabilities. Walking is only one of the many types of movements in which youth engage. Given the dynamic/sporadic nature of youth's activity patterns, the need arises to examine whether pedometers can accurately record activities other than walking. **Methods:** Sixteen youth with developmental disabilities (9 girls, 7 boys, 13.4±3.8yrs) were videotaped for five minutes during adapted physical education (APE) class while wearing five Walk4Life 2505 pedometers in five locations around waist (front right and left, and back right, middle, and left). Subjects engaged in activities consistent with their APE curriculum (e.g., playing catch, volleyball). Researchers viewed each videotape and recorded actual steps and activity time. Findings of each researcher were compared to recorded steps and time (pedometers) for absolute error and transformed into percentages. **Results:** The absolute percent error across the five locations for steps (time in parentheses) ranged from 72.8% (65.7%) to 42.3% (32.6%). Across all five locations and youth, pedometer registered steps were underestimated by approximately 52.9%±48.9%, whereas pedometer registered time was overestimated by approximately 22.5%±53.8%. **Conclusion:** The findings indicate pedometers may not accurately reflect the dynamic movement youth with disabilities engage during APE.

Evaluation of the Cure State and Water Content at Carbon Fiber containing Composite Surfaces

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A technique called 'Near Infrared diffuse reflectance spectroscopy' is able to monitor the moisture content in resin rich fiber reinforced composite surfaces and the cure state of resin at the surface of a resin rich fiber reinforced composite. Measurement of water in composites made from 934 resin and T300 fibers was addressed using both normalized absorption spectroscopy and using a "Chemometrics" second derivative partial least squares spectrum analysis. (Chemometrics is the procedure of relating measurements made on a chemical system via application of mathematical or statistical methods). We will show that interpretation of a diffuse reflectance near IR spectrum is more complex than interpretation of a transmission near IR Spectrum, with the result that a partial least squares (Chemometrics) analysis gives better results than a straightforward normalized Beer type plot. Calibration curves have been produced to relate diffuse reflectance near IR spectra to water content for uptake and desorption of water in medium and high performance epoxy resins, high performance adhesives, and carbon fiber reinforced composites. Calibration curves have also been produced to relate the near IR diffuse reflectance spectrum to cure state in high performance adhesives and carbon fiber reinforced composites. Chemometrics is the procedure of relating measurements made on a chemical system or process to the state of the system via application of mathematical or statistical methods.

What are the Effects of Focused Fluency Practice on Reading Rate, Motivation, and Interest in Reading for Struggling Primary Students?

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This study examines the effects of focused fluency practice on reading fluency, motivation, and interest in reading using a variety of research based strategies designed to improve fluency in struggling students. The ten week study looks at six third grade students with low achievement in reading. Multiple assessments and an assortment of methods were used including: repeated reading strategies, Reader's Theatre, Quick Reads, humorous literature, and reading for a reason. Rationale for each strategy is given and individual student progress is profiled to show the effectiveness of using a variety of methods to improve reading fluency. Repeated readings of independent level text were shown to be highly successful for improving reading rates in students with slow reading acquisition. Motivation to read was also shown to be improved. Additional effects on recreational reading and increased interest in subject areas for reading were also discussed using information from pre and post reading surveys.

Demographics and Disease Profile in an Urban Public Primary Care Clinic: Implications for Indigent Care, Insurance, and Health Care Disparities

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Introduction: Research has been conducted on indigent populations across the United States as well as the health care facilities which treat said populations. Factors such as ethnicity, language barriers, employment, and adequate insurance coverage all play a role in providing health care to indigent populations. No research has been conducted in regard to the disease profile of clients at Healthy Options for Planeview (HOP) in Wichita, Kansas. HOP is a community health center for patients residing in the Planeview area. The purpose of this study was to collect and analyze the disease profiles and demographics of those who received medical care at HOP in 2006. It was hoped that the data would serve as a guide to aid in the future treatment of the indigent population in the area and to aid in allocation of resources for HOP. Methodology: A retrospective chart review was conducted on all patients who were seen for medical services during the calendar year 2006. Data such as race, gender, age, diagnosis, and patient management decisions were collected. Results: One-hundred-three unique patient encounters were analyzed. The data revealed that most patients were female (69.3%), Hispanic (78.4%), unemployed (79.8%), had chronic medical conditions (39.8%), and received a referral to other local community health centers (24%, n=103). The most frequent medical conditions seen were normal history and physicals (11.2%, n=103), followed by well child exams (8.39%, n=103), hypertension (7.7%, n=103), and seasonal allergies (7.7%, n=103), and diabetes mellitus (4.2%, n=103). Furthermore, 39.8% of all patients analyzed had a history of chronic medical condition, and most were Hispanic (78.4%), while Spanish was the most common language spoken (20%, n=103). The study also revealed that most patients seeking care at HOP were female (69.3%, n=103), and unemployed (79.8%, n=103). Conclusions: The data revealed HOP patients to be primarily indigent with chronic medical conditions necessitating a referral to a more comprehensive community health center.

Micromechanical Modeling of Ferrite/Pearlite steels in Metal Cutting

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Micromechanics is the analysis of composite or heterogeneous materials on the level of the individual phases that constitute these materials. Given the properties (or nonlinear response) of the constituent phases, the goal of micromechanics is to predict the properties (or nonlinear response) of the composite material. The benefit is that the behavior of the composite can be determined without resorting to testing the composite, which can be expensive given the large number of permutations. Micromechanical Modeling offers the opportunity to model materials on a microstructural level for later interpretation of the result on a macroscopic level. In this project micromechanical modeling of ferritic/pearlitic steels is to be done by FE software. Since there are some experimental results, comparison can be made between them. The influence of some parameters such as carbon content, volume fraction, and morphology of the second phase on deformation behavior and also macroscopic and microscopic responses are studied. Two models were chosen for this study. First SHA model (stacked hexagonal array) and second the real microstructure of the steels. The results from the SHA model were matching with the results and study on the real microstructure is in progress.

Will You Be My Facebook Friend?

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Launched in February 2004 by students at Harvard University, Facebook is an online social networking site initially designed to replace the University's paper student directory. Following its launch, it quickly spread to college campuses across the nation, quickly becoming a popular way for college students to maintain ties. However, does the fact that students are spending more and more time on their computers "facebooking" one another affect face-to-face communication, specifically on small, residential college campuses? Small, residential college campuses often use the concept of a small, intimate community where students are able to build deep, meaningful relationships with both their peers and their professors as an element in the recruiting process. Additionally, the concept of a close community is continually developed through residence life and student life efforts, and seems to be a natural byproduct of these types of college campuses. Through focus group research at a small, residential college in Kansas, three themes emerged as to the effect of Facebook on a small, residential college campus: Facebook assists in maintaining long-distance relationships, Facebook helps to keep a person updated on the lives of those around them, and Facebook builds face-to-face relationships. These themes, supported by Charles Berger and Richard Calabrese's Uncertainty Reduction Theory, demonstrate that Facebook can assist in building face-to-face communication on small, residential college campuses.

Scourge of the Osage from the Hand that Held the Quill

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At the dawn of the nineteenth century, the Osage nation found itself embroiled in heavy trading and combat with Europe and neighboring tribes. While intricate negotiations usually smoothed over problematic agreements made between these parties and the Osages, they were of no avail against American expansionism. The nineteenth-century economic survival of the Osage people is examined during three key periods: the Thomas Jefferson presidency; the 1830s-1840s removal of eastern Indians to Osage territory; and the Osage's implementation of the grass-leasing business to support themselves once federal aid failed to reach them. With each experience, the tribe recognized that the means to survival was to model certain functions of their economic and political systems after those of America's capitalistic society. This research offers contemporary Osages a look into their past and the trials they overcame so gallantly. Moreover, a comprehensive study into the Osage's nineteenth-century economic saga has never been constructed, though this era was the most pivotal to their survival. At the beginning of Osage-American contact, it took only one generation before the tribe went from the richest, most powerful Amerindian nation in the Plains to having an 1830's diet consisting of only bitter acorns. It was the Osage's ascent to greatness once more that astonished not only their neighbors, but those of the modern day as well. After all, by the year 1900 the U.S. government deemed them the single richest society in the entire United States of America.

H_∞ Weighted Sensitivity Design of an Arbitrary Order Transfer Function with Time Delay, Using PID Controller

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A graphical technique for finding all Proportional Integral Derivative (PID) controllers that stabilize a given single-input-single-output (SISO) linear time-invariant (LTI) system of any order system with time-delay has been solved. In this paper a method is introduced that finds all PID controllers that also satisfy an H_∞ weighted sensitivity constraint. This problem can be solved by finding all PID controllers that simultaneously stabilize the characteristic polynomial and a family of related complex polynomials. An advantage of this procedure is the fact that it does not require the plant transfer function, but only its, frequency response.

Assessing academic (dis)honesty: A factor analytic study

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For over 70 years, research has tackled the issue of academic misconduct in the university setting (Parr, 1936). Despite a considerable amount of empirical data, consensus on the magnitude of such behavior has not been reached (Ferrell & Daniel, 1995). A review of the literature reveals that no one with expertise in quantitative methodology has attempted to classify the behaviors that describe cheaters until Ferrel and Daniel proposed the use of the Academic Misconduct Survey (AMS). Even they, following their 1995 study, made a call for more attention to developing understandable constructs in the measurement of cheating. Twelve years later, the present study seeks to produce such constructs. Nearly 600 participants, from two Midwestern universities, completed a revised version of the AMS. Using discriminant analysis, it was determined that no meaningful difference existed between the two; hence, the data was combined and factor analyzed. A factor solution containing six factors proved to be the most interpretable. The factors were as follows, with the number of items loading on each factor in parentheses: Reducing workload by borrowing (seven), creative padding (seven), mutual sharing (four), doing for others (six), false personal situations (four), and using others (two). Data collection and factor analyses will be performed in a second study in the spring semester utilizing data from other regions in the U.S. and Canada. This data will be presented along with the current results.

Effects of Cold Packs on Hamstring Flexibility

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Different thermal techniques have been used to increase hamstring flexibility with varying results. Research has shown that cold will help increase hamstring flexibility; however, there are limited studies on the use of cold treatments to influence hamstring flexibility. This study will test whether cold packs will impact hamstring flexibility. Subjects will be healthy male or female 18-30 year olds. Subjects will be excluded based on medical questionnaire, BMI >30, and hamstring injury within a year. Subjects will march in place to insure a common pre-test condition. A goniometer will be used to measure hamstring flexibility. A passive straight leg raise will be done to maximum tension and subject discomfort. Three pre and three post cooling measurements will be taken bilaterally. Only one leg will be cooled with a 2:1 water to alcohol cold pack. A repeated measures ANOVA will be used to analyze the data. It is anticipated that the subjects will have an increase in hamstring flexibility after cooling.

Microbial Reef Reservoirs at Little Cedar Creek Field, Conecuh County, Alabama

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Little Cedar Creek Field (LCCF) in Conecuh County, Alabama is the largest Smackover field discovered in the northern U.S. Gulf Coast in the last three decades. It is now the most productive field in the State of Alabama. The LCCF gives an opportunity to identify the characteristics of microbial (thrombolite) developments in shallow water deposits and differentiate it from the nearby reef reservoirs grow directly on Paleozoic basement paleohighs. Previous studies from this area have indicated that Jurassic microbial buildups are associated with Paleozoic basement paleohighs. In contrast, microbial buildups at LCCF apparently developed in shallow subtidal environment without the influence of basement rockgrounds. The objective of this project is to examine the microbial reef reservoirs at Little Cedar Creek in order to identify any relationship between depositional fabric type and reservoir quality distribution. Furthermore this study compares these nearshore thrombolite facies to microbial fabric types identified at Appleton and Vocation fields, Alabama and will focus on the types of Jurassic microbial developments in this field and the poor reservoir rock fabric types identified in other fields and characterized as lagoon, and subtidal facies. This study will improve the understanding of Upper Jurassic Smackover microbial development, its lithologic fabrics and controls on reservoir quality. The results will improve the exploration strategy to find other stratigraphic microbial carbonate reservoirs worldwide. Examining the controls on reservoir quality distribution at LCCF will provide new insights into this unique and prolific petroleum reservoir facies.

Movelt! A program to increase physical activity in fifth graders

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The number of overweight children, ages 6 to 11, has nearly tripled over the last 20 years, from 6.5% in 1980 to 18.8% in 2004; the number of overweight children ages 12 to 19 has also more than tripled, increasing from 5% to 17.4%. Currently, there are about 25 million U.S. children who are "at risk of becoming overweight" or "overweight." Contributing to these statistics is the lack of physical activity in America's youth, the focus of a proposal to the Kansas Health Foundation in December 2007. The proposal focuses on a plan to increase physical activity among Kansas' fifth graders through a program called Movelt!. Grounded in Social Cognitive Theory and behavior change theories, the Movelt! Program utilizes a team approach to develop a specialized physical activity program that empowers individual fifth grade classes to achieve a level of 60 minutes of moderate to vigorous physical activity per day every day. The Movelt! Team will work with the school to assess the fitness level of the fifth-graders. They will then work with fifth-grade students to develop a fitness program that is led by the students and can be incorporated into the regular fifth-grade curriculum. The first step in the proposed initiative is to implement a pilot program in one Wichita elementary school for the 2008-2009 academic year. The proposal is intended to assist Kansas in reaching and exceeding future Healthy People goals by focusing on those whose future health behaviors will determine Kansas statistics on physical activity, overweight adolescents and obesity.

Real Choice Systems Transformation Initiative

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Transforming or strengthening service and social systems is of growing interest by local and state initiatives due to the recognition that current systems have a number of limitations in meeting the changing needs of consumers. The Center for Community Support and Research is in its first year of collaborating with the Social and Rehabilitation Services of Kansas on a 5-year Real Choice Systems Transformation Initiative. The purpose of the initiative is to help Kansas consumers of long-term disability services self-direct their service options. In order to understand the current long-term disability service system two complimentary methods were deployed. First, archival data was gathered from state and federal sources regarding the utilization of long-term disability services. Secondly, key informant interviews were conducted with stakeholders across Kansas involved with long-term disability services. Taken together, these two sources provide a number of insights regarding the similarities and differences across service systems. Findings, insights, and implications for system transformation initiatives will be presented.

Mist cooling system for drilling of composites

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The drilling of composites project is aimed at minimizing delamination and reducing the fiber pull out, thereby improving the hole quality. In this project, we are introducing a new concept of supplying coolant to the tool and the workpiece. This is the mist cooling system, where a fine spray of coolant is focused on the tool and the workpiece. We need to investigate the effect of this cooling system on the surface characteristics of the drilled hole namely surface roughness and surface texture (also observing for delamination), shape and dimensional accuracy of the drilled hole. The surface roughness will be measured using a high precision surface roughness tester where as the surface texture will be observed under a high precision microscope which can be focused down to 700 nanometers (nm). The results of these experiments will be compared with the results of dry drilling (without coolant) experiments. We have already acquired the mist cooling equipment and will soon begin the experiments.

Combined Effects of Herbivory and Neighboring Plant Competition on *Cirsium Altissimum*

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Individually, herbivory and interspecific competition has been shown to strongly reduce plant performance. However, whether these factors combine in a multiplicative, synergistic or inhibitory manner to affect plant performance remains poorly understood. Improved understanding of the combined effects of herbivory and competition could help in designing control strategies for noxious weeds. We conducted a study from May - October 2007 that examined the combined effects of herbivory and neighboring plant competition on a native thistle of the Great Plains, *Cirsium altissimum* (tall thistle). Effects of herbivores were manipulated by excluding insect herbivores with insecticide and rodent herbivores with cages. Neighboring plant competition was manipulated by clipping all plants within 40 cm around focal tall thistle rosettes. Preliminary data analyses indicate that, as expected, clipping neighboring vegetation led to significantly greater rosette growth measured as the proportional increase in number of leaves per rosette ($F_{1,48} = 16.31$, $P=0.0002$). Interestingly, clipping the neighboring vegetation significantly reduced the proportion of leaves per rosette that suffered herbivore damage ($F_{1,78} = 8.48$, $P=0.0047$). The finding that the magnitude of herbivore damage increased with neighboring plant presence suggests that the combined effects of herbivores and neighboring plants on tall thistle rosette growth may be greater than predicted from their individual effects. The data indicates that maintaining extensive cover by neighboring grasses may be an effective way to reduce performance of rosette-forming weedy plants.

Effects of Human FSH Glycoforms on the Growth of Ovarian Cancer Cells *In Vitro*

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Recent studies suggest an age-related shift in human FSH from a di- to a tetraglycosylated form. In addition, a preliminary study suggested that tetra hFSH, stimulated the *in vitro* growth of an ovarian cancer cell line, NIH:OVCAR-3. These cells, derived from an ovarian adenocarcinoma, are slow growing with an approximate six-day doubling time. Thus, this cell line is an excellent model to observe the effect of growth-promoting agents. NIH:OVCAR-3 cells were used to examine the growth properties of FSH glycoforms. Since these cells require high fetal calf serum (FCS) levels and insulin, we investigated the impact of insulin and epidermal growth factor (EGF) upon OVCAR-3 proliferation. Results indicated there was a significant decrease in the number of cells when reducing FCS concentration 10-fold (standard versus base media). In duplicate experiments, we observed a stimulatory effect of EGF over base medium, but the effect was not dose dependent. In contrast, we did not observe a consistent effect of insulin on OVCAR-3 proliferation. We next treated OVCAR-cells with either the di- or tetra-forms of FSH. Our initial results were inconclusive in showing if there was a significant effect in cell growth between the two FSH glycoforms. In one of three experiments, we did observe a positive effect of the tetra form. Based upon our results, we sought to confirm the presence of FSH receptors on the OVCAR-3 cells. Total RNA prepared from OVCAR-3 cells and CHO cells transfected with the human FSH receptor, were subjected to RT/ PCR using human-compatible oligonucleotide primers. These primers amplify extracellular regions of the FSH receptor. Our results indicated that unlike CHO-FSHR cells, OVCAR-3 cells did not appear to express the FSH receptor mRNA, thus, there appears to be little or no impact of hFSH glycoforms upon OVCAR-3 cell proliferation. (Support: K-INBRE Undergraduate Research Scholarship awarded to Lan Ly)

Preparation of 2,2'-Bipyrazine and 5,5'-Dimethyl-2,2'-Bipyrazine

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Procedures to maximize the product yields in the preparation of the title compounds were investigated. The general preparative procedures for 2,2'-bipyrazine (bpz) and 5,5'-dimethyl-2,2'-bipyrazine (Me₂bpz) was as follows: Copper(II) salts of 2-pyrazine carboxylic acid (pzCOOH) and 5-methyl-2-pyrazine carboxylic acid (MepzCOOH) were obtained by reacting copper(II) chloride in water with a stoichiometric quantity of the appropriate acid to give Cu(pzCOO)₂ and Cu(MepzCOO)₂. The blue solid was removed by filtration, dried in a vacuum oven at 60 °C and then cooled to room temperature. It was then placed in a pyrolysis apparatus and the solid was heated to 300 °C. The products were separated from the remaining solid by a stream of argon gas and deposited on the walls of a condenser. The deposit was then removed and dissolved in acetone. Upon concentration of the material by evaporation of the acetone, it precipitated and was removed by filtration. It was then purified by repeating the process of dissolution in acetone, concentrating it by evaporation of the acetone and collecting the precipitate. The maximum yield of bpz was ~20% and ~2% for Me₂bpz. The compounds melted sharply at 167 °C and 138 °C, respectively. Variations in preparative procedures and pyrolysis techniques were examined and product yields were determined. Some of the variations were to add elemental copper to the solid undergoing pyrolysis, changing the stoichiometry of the acid added to the reaction mixture and altering the design of the pyrolysis apparatus.

Examining Website Accessibility Among The Disabled Population

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The Internet has given people opportunities to work at home, shop at their convenience, communicate with each other globally, and retrieve information that wasn't easily accessible before. However, not everyone is given equal access to enjoy what the Web has to offer. People with disabilities in particular have more difficulty than the non-disabled population when accessing websites and processing information on the Web. This two-phase study focuses on people with various types of disabilities. The first phase involved a survey to assess the general internet usage of disabled people and the general views that they have about government (.gov), education (.edu), and other websites (.com, .net, etc.) The second phase involved the examination of performance and preference of people with learning and/or cognitive disabilities on two travel websites. Results will be used to determine potential ways that webmasters and web designers can improve accessibility of websites for the disabled population.

Using Self-Monitoring And Goal Setting To Increasing Walking Behavior in Older Adults

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INTRODUCTION: Research supports the hypothesis that regular physical activity (PA) improves health. However, most older adults are not sufficiently active. Steps need to be taken to encourage regular PA among older adults. **PURPOSE:** To determine if pedometer step goals are effective in increasing the walking behavior of older adults. **METHODS:** Older adults were recruited by public postings. Eligible subjects received an Omron pedometer to monitor step activity during a 9-week intervention. Subjects were part of a larger study investigating the impact of a PA program on functional fitness. Subjects met 2X/week at the Downtown Senior Center. To determine appropriateness of participation, older adults were screened using the EASY (Exercise And Screening for You) tool. If screening indicated the subject should consult their physician, a physician's consent was required. **INTERVENTION:** Subjects were asked to increase daily pedometer steps. Progression was based on an individualized approach of goal-setting and self-monitoring. To achieve an individualized prescription, a 1-week baseline (steps/day) was established as subjects performed normal daily activities. Based on these values, step goals were calculated by increasing the previous week's step rate by 10% with a subsequent 10% increase weekly until an overall step goal (6,000-8,500) was achieved. Subjects recorded steps on a paper log weekly and received step goals the following class. **RESULTS:** Pedometer steps will be checked for normality. Paired-samples t-tests will be used to compare pre-and post-intervention step averages. A significant test will indicate the successfulness of using step goals to increase walking behavior in older adults. Repeated measures ANOVA will be used to evaluate weekly change. **CONCLUSION:** It is anticipated that self-monitoring and goal-setting will motivate older adults to increase daily walking activity.

Disagnotic Aids and Overall Physician Ratings

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Previous research has shown that physicians who are described as using a computer-based decision aid during the diagnostic process are given lower ratings of overall satisfaction, diagnostic ability and professionalism (Arkes, Shaffer, Medow, 2007). In addition, this dissatisfaction appeared to be caused by the use of a computer-based aid, as opposed to the solicitation of an outside source (Probst, Shaffer, Lambdin, Arkes, Medow, 2007). Physicians seeking help from a human expert were given greater ratings of diagnostic ability and overall satisfaction compared with physicians using computer-based aids. The basis of this study will be to determine whether individuals find the use of computer-based decision aids more acceptable when physicians explain them as a hospital policy versus physicians using them of their own volition. Participants will be assigned to the control group, diagnostic aid group, or status quo group. Their task will be to evaluate their experience with the physician based on five criteria: thoroughness of the exam, length of wait, diagnostic ability of the physician, professionalism, and overall satisfaction with the visit. After data is collected, an analysis of variance will be conducted using the between-subjects factors of group, gender and ethnicity. To date, data has been collected from approximately 150 participants.

Social Support and the Well-Being of the Elderly

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This study is to understand how the social support of the elderly influences their well-being. The study uses face to face or phone survey designs to interview 150 elderly people who live in Kansas, or near Kansas, using a structured survey questionnaire. To measure the social support and well-being of the elderly, the study used standardized scales: the Multidimensional Scale of Perceived Social Support (MSPSS) and the General Well-Being Schedule (GWBS). The study uses convenient sampling methods to survey parents, grandparents, relatives, or neighbors 65 years old or over.

This study will find that social support can provide the elderly protection against negative mental and physical health of the elderly. Social support of the elderly from family members and friends related to the quality of late life. Social support does promote better health practices. The more social support one has, the less likely they would decline functionally. In summary, providing supportive environment from family members or close friends will significantly increase the well-being of elderly people.

Evaluating the Effect of Cultural Competency Education on Physician Assistant Student Attitudes

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Introduction: Cultural competency education has become increasingly important in health care education in order to treat patients in a nation of diversity. A standardized way of introducing cultural competency material and testing its effectiveness has not yet been formalized. Methodology: The purpose of this study was to analyze whether cultural competency attitudes of physician assistants changed after completing a cultural competency curriculum. A pre and post intervention survey of 15 questions was completed by a class of 42 physician assistant students. Results were analyzed using the Chi-Square statistic. Results: Attitudes on cultural competency were primarily unchanged from before and after completing the cultural competency curriculum. However, one item was statistically significant in terms of a relationship between pre and post intervention. Students initially believed that PAs can not give excellent health care without knowing the patients' understanding of their illness. However, after completing the cultural competency curriculum, students primarily believed that PAs were able to do so. Conclusion: This preliminary study of PA students' attitudes of cultural competency represents the attitudes of one class of PA students. Further studies are recommended in order to assess a variety of PA programs and cultural competency curricula.

Acute Effect of 30 and 60 Second Static Hamstring Stretch Holds on Knee Flexion Strength

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Stretching has long been a controversial issue regarding muscle strength and elongation after completion of a stretching session. Stretching has been used as a warm-up technique to increase joint range of motion, enhance joint performance and aid the prevention of injuries; however, previous studies have reported that stretching leads to a decrease in peak torque production after completion of a stretching session. Our study was designed to determine if there is a difference in torque produced with a hamstring curl after a 30 second and 60 second static hamstring stretch. Our study included 59 participants (13 males, 37 females) between the ages of 20 and 29. These participants were volunteers from the first and second year physical therapy classes at Wichita State University. Excluded subjects included individuals with a history of surgery on their dominant lower extremity and expecting mothers. The Lido Isokinetic Dynamometer was used to measure torque production (ft-lbs) of knee flexion on two separate occasions no more than two weeks apart. The first testing session was performed without a pre-testing stretch and the second session was performed with a pre-testing stretch. We anticipate that our data analysis will be assessed using a repeated measures ANOVA. After collecting data we predict that our results will show that the largest strength gains come from a 60 second hamstring stretch followed by the 30 second hamstring stretch and lastly no stretch.

Extending Piecewise Exponential Estimator of the Survival Function

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The survival function of a life time, T , is defined by $S(t) = P(T > t)$ for $t \geq 0$. The common estimator of $S(t)$ is the empirical survival function, $S_n(t)$, which is defined as the proportion of n subjects in the study surviving time t . This is a step function. In survival analysis, the Kaplan-Meier estimator, that utilizes randomly selected right-censored data, the partial information, is by far the most popular estimator of S . This too is a step function that jumps only at the points where the observations are uncensored. In case of no censoring, it reduces to the empirical survival function. Proschan and others have developed a method of estimation that is piecewise exponential, - between successive jump points the estimator is of the form $S(t) = C \exp(-rt)$ for some constants C and r . This estimator, called PEXE, is continuous, as it should be for a life distribution. However, from the method of construction, the estimate is undefined beyond the last observation. We have proven that the PEXE always has a lower mean than that computed from the Kaplan-Meier estimator. Viewing the estimation of the mean of the distribution and that of the survival function as separate problems, we can extend the PEXE estimator on the right by another additional exponential tail so that the two estimators give the same estimate of the mean. By simulations with various survival functions, we have been able to show that our estimator improves on both the Kaplan-Meier estimator and the PEXE estimator.

Transportation and Distribution of Future Energy: Biofuel

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Biofuel is a natural resource and has a significant attraction worldwide for many applications, including transportation vehicles, house and industrial heating and electricity production in power stations. It is reported that this fuel can also reduce greenhouse gas emissions, increase US energy independency and provide an alternative energy to fossil fuels. The uncertainty of petroleum price and political instabilities makes biofuel more attractive and appealing for USA now. In order for biofuels to be a more viable replacement for petroleum based fuels, problems related to its transportation and distribution must be solved. The transportation and distribution options should be cheap, fast and sparsely spread through consumer demand points. In this paper, we review the current status of transportation (e.g., pipeline railroad or ship) and distribution (e.g., truck) options for biofuels. The goal for follow on research will be to improve upon the current status through recommendations for refinery location and new transportation infrastructure. This will be accomplished via modeling, simulation and economical analysis.

Kansas Employers Compliance with Healthy People 2010 Initiatives Targeting Health Promotion in the Workplace

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Introduction: The CDC and the Department of Health and Human Services has set a goal to increase the number of health promotion programs in the workplace as part of the Healthy People 2010 Initiative. Health promotion programs are designed to promote health in the workplace by targeting health risk reduction and actively preventing the onset of disease. The purpose of this study is to determine the number of Kansas employers currently offering a health promotion program, types of services offered, barriers in offering a program and how company size correlates with compliance. **Methodology:** Surveys were sent to 500 hundred Kansas companies, who were randomly selected from the database Reference USA, 100 for each of 5 categories based on number of employees. Frequencies of responses were tabulated and compared to company size. **Results:** 154 surveys were returned for a 30.8% response rate. 60% of respondents stated that they offered a health promotion program. 73% of respondents employing more than 250 people offer a program, whereas only 45% of companies employing less than 250 people offer a program. **Discussion:** Kansas appears to be in close compliance with the CDC's goal of 75 % in companies with more than 250 employees, but falls short of compliance in those with 250 employees or less. Because the majority of Kansas companies are small, there is still much that needs to be done in promoting health in the workplace.

Discovering the Best Vocabulary Teaching Strategies for Elementary Students Learning English as a Second Language

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This research asks: What strategies work best for teaching vocabulary to English language learners? A systematic, direct, explicit approach was used to teach a specific bank of academic words in a sheltered classroom that sought to motivate students to become involved with each other socially. The systematic, direct, explicit instruction involved the use of scripted lesson plans that covered calendar words, affixes, vocabulary games, teacher translated vocabulary lists, partner and classroom discussion, and strategies to use when unfamiliar words are encountered during contextual reading. Students were assessed using the following reading tests: the Scholastic Reading Inventory (SRI), Johns, and the Northwest Evaluation Association (NWEA). This research indicates that students who were consistently involved in this research were successful.

Classification and Regression Trees as Alternatives to Regression

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Traditional statistical analyses, such as ANOVA and Regression, require that many assumptions be fulfilled in order to obtain accurate results. For example, there are assumptions of normally-distributed data, linear relationships between the dependent variable(s) and independent variables, and homogeneity of variance. In this presentation, we will describe the use of Classification and Regression Trees (CART) to sidestep the assumptions required by traditional analyses. CART has the added benefit of not requiring large sample sizes in order to obtain accurate results, although larger sample sizes are preferred. There is also a difference in the goal of CART compared to traditional analyses. CART is geared toward prediction, whereas traditional analyses are geared toward developing a specific model for your data. The poster will contain specific information about the procedures underlying CART, as well as an example involving data from a legibility of fonts study.

Analysis of the Effect of Carbon Monoxide Exposure on Accidents/incidents in General Aviation Aircraft

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Exposure to carbon monoxide (CO) can cause harmful health effects depending on its concentration and duration of exposure. Exhaust system failures in general aviation (GA) aircraft can result in CO exposure which, in turn, can lead to an accident. This research was performed in order to obtain insight into the causes of CO-related accidents/incidents in GA aircrafts through the analysis of historical data from the NTSB accident/incident database. The results indicated that CO related accidents/incidents occur throughout the year and that the muffler was the most common source of CO leakage. This was found to be the case even though accidents due to muffler and exhaust system leakage were more prevalent in the colder months. This paper reviews the data and presents the results of the analysis.

Rate Distortion Analysis for Conditional Motion Estimation

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Motion estimation deals with the estimation of motion parameters from a video. Conditional motion estimation is a technique that estimates motion for certain blocks selected based on a decision criterion that affects coding rate, complexity of coding scheme and quality of the reconstructed video. In this paper, we propose a conditional motion estimation scheme and present its rate-distortion analysis.

Factors Influencing Rural Physician Assistant Practice

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Introduction: In the 1960's, it was discovered that there was a significant need for more physicians to serve the U.S. population, especially in rural and medically underserved communities. The Physician Assistant profession was built with the hope of being an extension to physicians to help meet these needs. However, there continues to be large numbers of communities in every state that lack access to health care. The purpose of this study was to explore the factors influencing Physician Assistant practice location choice. **Methodology:** A cross-sectional study through the Department of Physician Assistant at Wichita State University was conducted. Application data from WSU graduates from classes of 2003, 2004, and 2005 were evaluated for desired community size of practice location at the time of application compared to actual job placement and community size after graduation. A written survey was mailed to the same classes of graduates to assess factors that influenced selection of their first and current practice location. Data was analyzed using standard statistical tests. **Results:** There was a 44% response rate from the 126 eligible to participate. It was noted that 60% of applicants listed their preference specialty as family practice; however, less than one-third of graduates were currently working in the family practice specialty. Similarly, applicants noted a preference to work in rural areas, but upon graduation for their first job and current job they tended to work in urban areas by a large percentage. There were five different factors that played a significant role in the PA's decision of practice location: spouse's support of location, quality of life, employment opportunities for the significant other, scope of practice and recreation. **Conclusion:** Choice of employment at the time of application compared to graduation was markedly different. Choice of practice location was not a decision made by the graduate physician assistant alone, but also in conjunction with their significant other.

The OSCE Compared to the PACKRAT as a Predictor of Performance on the PANCE

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Background: The purpose of this study was to compare the Physician Assistant Clinical Knowledge Rating and Assessment Tool (PACKRAT) and the Objective Structured Clinical Examination (OSCE) as predictors of performance on the Physician Assistant National Certifying Examination (PANCE). To become a physician assistant (PA) one must graduate from an accredited program and pass the PANCE. Due to the fact that the PACKRAT and the OSCE are being used to evaluate and prepare students to take the PANCE, it is imperative to know the predictive value of these exams on the PANCE. **Methods:** The data were collected on 84 WSU PA Program graduates of 2003 and 2004 who had taken the PANCE. The identified set of explanatory variables used included PACKRAT I and II, OSCE I and II, and PANCE scores. Correlation analysis was conducted comparing PACKRAT I, PACKRAT II, OSCE I, and OSCE II to PANCE using linear models to determine how the scores relate. **Results:** PACKRAT and PANCE scores were shown to be highly correlated. OSCE and PANCE scores were correlated, but to a lesser degree. Linear regression revealed a relationship between the PACKRAT and PANCE as well as the OSCE and the PANCE ($p < 0.05$). **Conclusion:** Both the PACKRAT and OSCE scores were predictive of PANCE scores. The PACKRAT was more predictive of the PANCE than the OSCE.

Iron Based Earthenware In A Forced Reduction Atmosphere

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Iron is a strong flux in ceramic glazes when fired in an oxygen starved atmosphere (reduction), resulting in a CO₂ rich atmosphere. The CO₂ robs the iron (Fe₂O₃) of two oxygen molecules, thus transforming the iron into FeO. It is when iron is in the FeO state that it becomes an active flux and it is this state of flux that I am interested in. Earthenware clay is an iron rich clay that is typically fired in an oxygen rich atmosphere where the iron in the clay maintains its maximum amount of oxygen. This results in a porous and non-vitreous clay, which typically requires the application of glaze or a vitreous surface to allow for safe utilitarian usage. I intend to research and develop a low-fire earthenware clay body that becomes vitreous due to the forced reduction atmosphere in which it will be fired. The intention is to develop a low-temperature food safe clay body that doesn't require glaze for utilitarian applications. This will result in aesthetic alternatives to surface treatment and finishes. In this research I will formulate five different clay bodies, each varying in the amount of iron. All the clays will be fired in both oxidized and reduction atmospheres, allowing for comparable data from which saturation of carbon and vitrification can be tested. One set will be fired to 1954 °F in an oxidation atmosphere, which will be used as the control. The reduction firings will also reach 1954 °F in oxidation and then cooled in a reduction atmosphere down to 1500 °F. It is in the cooling cycle that I anticipate the vitrification to occur.

Designing Supply Chain Network for Distillers

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The ethanol industry in the United States is expanding rapidly, consequently, the amount of coproducts called distillers feed is also expanding at a rapid rate. These distillers can be fed to cattle because they are excellent source of protein, energy and phosphorus. As they are much cheaper than corn and soybeans, a successful attempt to replace corn and soybeans with distillers feed may provide significant advantages to both ethanol producers and the feedlots. In this paper we propose a supply chain model which minimizes the overall cost of distribution of distillers. We will present a case study on Kansas Ethanol plants.

Ratings of Physicians Relying on Experts Versus Physicians Relying on Decision Aids

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Errors in the field of medicine are costly; both in the priceless commodity of life as well as monetarily. The use of decision aids as tools to reduce physician error has proven to be beneficial. These decision aids have saved lives, reduced cost of treatment, decreased medication errors, and still have remained accurate in their ability to help physicians with the diagnosing of a patient. However, patients derogate physicians that use such aids across many variables (diagnostic ability, professionalism, overall satisfaction with exam). The current research attempts to answer the question that it is the use of a computer in a human centered field such as medicine that patients are not comfortable with, and not the consultation of an outside source by a physician. Three groups are compared, where a physician makes an unaided diagnosis; one where the physician consults another human expert for a second opinion; and one where the physician uses a computer based diagnostic aid to diagnose a patient. Two Man-Witney U tests showed that physicians who used the computer based aid were derogated by patients more than physicians making an unaided diagnosis; and that the physician making the unaided diagnosis was rated similar to that of the physician who consulted another human expert; showing it is the use of computers that patients derogate.

Kansas Pharmacists' Knowledge, Attitudes and Beliefs Regarding Over-the-Counter Emergency Contraception

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To increase patient access, the FDA recently approved OTC sale of emergency contraception (EC) nationwide, thus placing pharmacists in the role of "gatekeeper". **Purpose:** Measure knowledge, attitudes and beliefs of KS pharmacists regarding EC. **Methods:** A survey with 46 items assessing respondent characteristics, knowledge, and attitudes/beliefs was mailed to all 2,601 registered KS pharmacists. **Results:** A total of 22.4% of pharmacists responded, n=583. The overall mean knowledge score was $57\% \pm 20$, however scores were higher in persons working in settings where EC is sold, $46\% \pm 21$ vs $61\% \pm 18$, $p < 0.001$. The knowledge question with the lowest accuracy, 28%, asked about notifying authorities in cases of sexual assault. Only 37% correctly identified the primary mechanism of action as delaying/preventing ovulation. A majority of pharmacists would dispense EC in cases of rape (80%), incest (79%), and regardless of the situation (62%). However, many expressed concerns including its use as a regular form of birth control (44%), medical liability (41%), and promoting unsafe sex (37%). Religious and political views significantly affected willingness to dispense. **Conclusion:** Overall, knowledge of KS pharmacists regarding EC is low and should be strengthened. While the majority of pharmacists are willing to dispense EC, a significant number did express concerns indicating this may be causing some professional ethical stress deserving of statewide discussion.

Geographical Bilateral Exchange Rate Pass-through in the United States

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From February 2002 to December 2007, the dollar depreciated 34.2% against other major currencies. During the same period, core consumer prices only increased 11.3%. One would think the consumer prices would be more responsive to changes in the exchange rate as globalized as the world is today. Most studies have measured the exchange rate pass-through (ERPT) into import prices which have been found to be more responsive than consumer prices. This paper has an alternative aim, one that has not been investigated in the past. The purpose of this paper is to estimate the ERPT from Canada to the four major regions of United States into the consumer prices (CPI) using a nominal bilateral exchange rate in order to see geographical differences of the ERPT domestically. This issue is important for both monetary and exchange rate policies and can give a more geographical insight in the ERPT. The results found are unexpected. Only a few categories of the CPI are found to be impacted by exchange rate changes in Northeast, Midwest and South. In the West, none of the CPI categories are significantly impacted. Furthermore, the South region experiences ERPT in the most categories whereas the Midwest experiences the largest magnitude of ERPT in its significant categories.

Sexual Satisfaction and Commitment

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The purpose of this study was to examine the mechanisms by which commitment is associated with sexual satisfaction. This study expanded on previous research to determine whether three pro-relationship sexual behaviors (disclosure, motivation to satisfy partner, and emotional bond) would explain a significant amount of variance in participants' sexual satisfaction and whether these variables mediated the association between commitment and sexual satisfaction. A convenience sample was collected, consisting of 100 undergraduate female students. Participants completed a survey that included the following measures: Rusbult relationship satisfaction scale, The Global Measure of Sexual Satisfaction, Rusbult's commitment scale, and scales created by the researcher to assess the three pro-relationship sexual behaviors. There was a statistically significant correlation between sexual satisfaction and relationship satisfaction ($r=.70$) and between sexual satisfaction and commitment ($r=.57$). Commitment was most highly correlated with emotional bond ($r(100)=.70$), followed by motivation to satisfy partner ($r(100)=.47$), and disclosure ($r(100)=.36$). These results indicate that women who reported being more committed in their relationship also reported an increased use of the three pro-relationship sexual behaviors.

Does Conceptual Learning Improve A Student's Level of Confidence in Math?

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There is a need for students to increase their understanding and application of mathematical skills to compete in today's international economy. According to the National Council of Teachers of Mathematics (NCTM), the crucial element is for students to understand the math concepts in implementing a successful mathematics curriculum. Encouraging students to think aloud and share the way they approach problems with each other may be especially important in helping students feel confident and have a positive attitude within the classroom. I conducted a confidence survey with my fourth-grade math students and used that data to identify individuals who felt they were not strong in mathematics or simply felt frustrated with the concepts we were learning in mathematics class. Over a two week period, I taught a variety of lessons that focused on the concept of division and applying it to real-life situations. I observed those specific students to identify any changes in confidence levels or attitude to reflect any improvement in these areas of concern. As a final assessment, students reflected on the meaning of division and identified what the quotient in a long division problem represents or means. The results of my study were inconclusive. I found that the class as a whole understood how to solve division problems and could do so successfully, but failed to be able to define what the meaning behind the division was when applied to larger problems. Students who felt frustrated with math appeared to be as successful and confident as those who self-assessed themselves at a higher level of confidence. The results of my study support what research is stating today about the concern that students do not have a deep understanding of how mathematical concepts are interconnected.

Satisfaction of Specialist Physicians with Patient Referrals from Physician Assistants: A Pilot Study

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Introduction: As primary care providers, physician assistants (PA) refer patients to specialist physicians for continued care. Referral of a patient to a specialist for consultation is an important link in the continuum of patient care, and efforts to improve the referral system may enhance the satisfaction of the primary care provider, specialist, and patient. **Methods:** A survey was mailed to a random sample of specialist physicians in Johnson and Sedgwick counties in Kansas. **Results:** A significant majority of respondents are generally satisfied with appropriateness (94%), timing (80%) and communication (85%) of referrals from PAs. Of the small number expressing dissatisfaction, the most frequent reason for dissatisfaction stated that the patient's condition had been misdiagnosed. In addition, a majority of specialists (73%) agreed that referrals received from PAs were of the same quality as referrals received from physicians. **Conclusion:** Specialist physicians are generally satisfied with referrals from PAs, however there are specific areas in the referral process that may be improved to increase the satisfaction of specialist physicians with referrals from physician assistants. In addition, an important finding not previously discussed in the literature is that specialist physicians perceived no significant differences between the quality of referrals received from PAs compared to physicians.

Modeling and Optimization of a Health Care System

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In many applications, the number of elements in the system (i.e., machines, jobs, customers) is either constant or remain fixed. This type of a system is modeled as a closed queuing system. Closed queuing systems are those in which there is no exogenous arrival to the system and no element leaves the system. In these systems, departure from one state is an arrival to the next state. Those cases in which the system is always full and any departure from the system is immediately replaced by a new arrival are also considered closed systems. This closeness of the system changes the nature of the modeling process in which the well known queuing models need to be modified accordingly. In this research, a health care center with a limited number of beds which are used at their maximum capacity is considered. In this closed queuing system, available and reserved nurses are also modeled by means of closed queuing systems. Considering the interaction of the resulting networks, the optimal level of reserved nurses as well as the patients discharge and admission rates is determined in such a way that the overall cost incurred is minimized.

Pilgrimage and its Effects on San Paolo Fuori le Mura During the Middle Ages

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The purpose of this paper is to look at the history of San Paolo fuori le mura (Saint Paul's Outside the Walls), the basilica in Rome dedicated to St. Paul, in order to demonstrate the impact that pilgrimage had on the development of its church structure and interior ornamentation. Several factors played a key role in this basilica's importance as a pilgrimage destination throughout the Middle Ages. I will argue that the various methods employed by the church to attract pilgrims to this particular church promoted its architectural development. During the Middle Ages one of the most important factors contributing to the overflow of pilgrims traveling to San Paolo fuori le mura was the institution of the Christian Jubilee. The papal bull issued by Pope Boniface VIII in 1300 C.E., greatly increased the number of pilgrims visiting Rome, and, in particular the church dedicated to St. Paul. The paper concludes that during this time period, the popularity of this site as a destination of holy journeys was one of the main factors which brought about changes to its overall structure and for the addition of lavish decorative elements.

Causes of Variation in Damage by Folivores: The Roles of Ecosystem Productivity and Habitat Complexity

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Understanding the causes of variation in herbivore damage to plants is very important in that crop loss can be reduced, and damage may be manipulated to prevent population growth of invasive weed species. My research focuses on variation of damage by insects to leaf tissues of tall thistle (*Cirsium altissimum*) rosettes under differing levels of ecosystem productivity and habitat complexity. I address four specific questions in my research. First, does ecosystem productivity affect the amount of tissue loss to insect herbivory? Second, does habitat complexity, in terms of litter and local species richness, affect tissue loss to insect herbivory? Third, is there any interaction effect between ecosystem productivity and habitat complexity on plant tissue loss to insect herbivores? Fourth, do ecosystem productivity and habitat complexity affect the fresh biomass of insect carnivores and herbivores? Two sites with four 40 m X 40 m plots each were chosen for ecosystem productivity manipulations and subplots within the 40 m X 40 m plots are used for manipulations of habitat complexity. Nitrogen was added to experimentally increase ecosystem productivity and litter (dead plant parts that are lying down) and species richness were manipulated for habitat complexity. Preliminary results from the first year of field work showed that the mean proportions of leaves damaged severely (>50% leaf area damaged) were 0.236 ± 0.027 for nitrogen addition plots and 0.258 ± 0.025 for control plots. Mean proportion of leaves damaged severely were, 0.290 ± 0.040 for litter removal, 0.261 ± 0.042 for litter addition, 0.278 ± 0.039 for litter control. Similarly mean proportion of leaves damaged severely were, 0.194 ± 0.037 for species richness reduced, 0.196 ± 0.038 for species richness control. Statistical analysis of these data is on-going.

Correlation between Berg Balance Scale rating and Triceps Surae Strength in an elderly population

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Background and Purpose: Nearly one-third of all people over the age of 65 will suffer a fall each year; of those who do fall, one-third will suffer a moderate to severe injury limiting their independence. Currently, people over the age of 65 make up 12% of the population; by 2030 this number is expected to increase to 17%. The purpose of the study was to determine if there was a statistically significant correlation between the Berg Balance Scale (BBS) rating and triceps surae strength as measured with a hand held dynamometer in an elderly population. **Subjects:** Thirty-four self-perceived healthy adults, 64-90 years of age, residing at a local retirement community and were independent ambulators. **Methods:** Upon receiving consent, subjects completed a health questionnaire and a two minute warm up walk. Triceps surae strength was measured three times on each leg using a hand held dynamometer and then averaged. Participants' balance was measured using the BBS. **Results:** Using the Pearson correlation coefficient, a significant direct relationship was found between triceps surae strength and BBS rating. **Discussion and Conclusion:** These findings indicate that triceps surae strength may play an important role in balance. By developing strengthening programs for the elderly population that include the triceps surae muscle, the risk of falls may be decreased.

A Work-Based Walking Program for Older Women

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With the aging workforce, the workplace is a unique environment to implement a physical activity (PA) program for older adults. **PURPOSE:** To investigate the impact of a work-based internet-delivered PA program on older female elementary school teachers. **METHODS:** A 25-week PA program was delivered via a secure web site. The site consisted of six elements: education, PA tracking logs and graphs, individualized PA goals, team standings, progression along a US trail, and discussion board. Employees logged onto the site daily, recorded steps and non-walking (i.e. swimming) PA. Non-walking PA was converted to steps and combined with daily steps. Participants wore a pedometer daily and entered steps and other activity on the program website. Body Mass Index (BMI), percent body fat (BF), blood pressure (BP) and resting heart rate (HR) were also collected. **RESULTS:** 22 women [11 intervention (53.7 yrs.) and 11 control (54.1 yrs.)] participated. The average number of steps among intervention participants increased 59% ($p<.01$). There was a significant change in both measures of body composition. BMI decreased from 27 to 25 ($p<.01$) and BF decreased 3% ($p<.01$). There was no difference in BP or HR. **CONCLUSION:** The results of this study indicate a work-based PA program can be a useful tool to improve the activity level and body composition of older women.

Prevalence of Preprofessional Health Professional Students at Wichita State University Attending a High School Biomedical Program

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Introduction: To address the shortage of healthcare professionals nationwide, high schools across the nation have introduced biomedical programs into their curriculum to draw students into the health career track. In order to determine the magnitude of such programs among healthcare students in a mid-western university, 1,358 individuals were surveyed who were either current healthcare students in or graduates from the College of Health Professions at Wichita State University. **Methodology:** A 16 question survey, collected respondents' demographic information, whether they participated in a high school biomedical program, and their perceptions of the program (if a participant). If appropriate the respondents were also asked to rate their biomedical program in terms of curriculum, healthcare insight gained, clinical experience, and student counseling. **Results:** The survey response rate was 17.7% ($n=241$). Only 7.5% ($n=18$) of the respondents participated in a high school biomedical program. Of those students who participated in a biomedical program, 89% went on to major in healthcare during college. Ninety-four percent recommended a biomedical program to others. Demographically, the majority of respondents were White (89.2%) and 86.3% were female. **Conclusion:** Overall it appeared that a small percentage of the pre-professional and professional healthcare students at Wichita State University attended a biomedical program in high school, but of those who did, the majority went on to major in healthcare and would recommend the program to others.

Health Care Provider's Cultural Competency with Latinos

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INTRODUCTION: Latinos are the largest growing minority group in the United States and by 2030 are expected to comprise over twenty percent of the total population. Health care provider's knowledge and understanding of a particular ethnic group can affect patient care, patient compliance, and facilitate informed decision making by the patient. PURPOSE: The purpose of this study is to examine health care providers' perceived versus actual cultural competency levels with Latino patients. METHODS: A survey was conducted via the internet. The results were analyzed using descriptive statistics and cross tabulation with SPSS version 15. RESULTS: Among the five important areas of communication with Latinos: gender issues, family issues, physical contact, nonverbal communication, and alternative medicine, the percentage of the respondents who strongly agreed or agreed that they perceived themselves as culturally competent and answered the actual competency questions incorrectly were 69.1%, 44.0%, 55.7%, 39.3%, and 29.4% respectively. CONCLUSION: It was shown that in four out of five important areas of communication among Latino patients, greater than one third of all respondents perceived themselves as culturally competent while they were unable to respond correctly during the test of actual competency. In the end, this study may be used to educate health care providers about the importance of recognizing communication and behavioral differences among Latino patients.

The Great Between-Subjects Assumption

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There seems to be an *a priori* assumption that many judgment and decision-making (JDM) findings will only be supported in between-subjects designs, even though between-subjects results can be misleading and not all JDM constructs are operationally defined in a way that renders between-subjects findings relevant. This paper tested the "between-subjects assumption" by taking two famous JDM findings (Shafir, 1993; Tversky & Kahneman, 1986) that primarily enjoy only between-subjects support and replicated them within subjects. Replicating within subjects allowed us to conduct a manipulation check, and the qualitative data gathered surprisingly suggest the original experiments lack construct validity. The results stress the importance of replication as well as the use of qualitative data to check construct validity.

Differences in note taking strategies

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Some educational researchers and practitioners have called note taking one of the research based strategies that help improve student achievement. I reviewed some of the literature on note taking and found that researchers agree that note taking is useful. I found descriptions of several different methods of note taking, and I wanted to investigate the relative usefulness of some of the methods. After studying some literature about two different styles, the Cornell note taking system and guided notes, I taught these methods to two different classes. I then gave both students the same test over the same content and found some interesting differences in the relative performances of the two classes. Both note taking strategies seemed to benefit students, especially when those students had previously not been in the habit of taking notes. However, I noticed that the two note taking systems were helpful to students in different ways depending upon the type of information the students were asked to learn.

Do Babies Increase Vocabulary by Viewing Baby Media?

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The American Academy of Pediatrics recommended that children under two years of age not watch TV or other electronic screens; however, the number of videos targeted at this age group continues to increase. Marketers claim their products will increase vocabulary and cognitive abilities; however, there is a lack of empirical studies. Research on brain development indicates that babies learn best by having salient experiences and interacting with their caregivers (Gopnik, Meltzoff, & Kuhl, 1999). Because of the possibility that some positive language learning can occur due to media viewing, more research is needed in this area with a focus on very young children. There is an abundance of information available about the positive relationship between vocabulary and home literacy routines (Foy & Mann, 2003; Senechal, LeFevre, Thomas, & Daley, 1998; van Kleeck, 2006). Research is needed comparing the increase in vocabulary that occurs as a result of viewing baby media with that of shared book reading. Eight children (12-30 months) were assigned to one of two groups during this 4-week study. Each week, Group 1 watched a 10 minute segment of a DVD “edutainment” program targeted at this young age group. Group 2 parents read books to their child for the same amount of time as the DVD group. Books were the DVD companions and covered the same vocabulary terms as the DVD. Differences between weekly pre- and post-tests revealed greater overall gain by the group that was read books.

Lean Production in 40/45 Assembly Line of Learjet Inc.

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Tremendous amount of competition among companies calls for effective use of limited resources. Increasing the market share with decreasing the cost of operation is slogan of this era. Lean production serves as a major relief for manufacturing and service industries in this competitive world. The project deals with a 40/45 assembly line of the Learjet Inc. The company has been facing popular manufacturing diseases such as high cycle time and high labor hours which were limiting the profitability of the company. The project discusses the root causes of these problems. Capturing the current manufacturing variables of the assembly line in value stream map is the starting point of the project. The project presents improvement methods for this assembly line at great length. The results and outputs of implementing lean techniques in assembly line are summed up in future value stream map. Quantitative analysis is also presented at the end of the project which translates the lean application to the assembly line in terms of actual cost savings.

Uncertain Location Routing Problem (LRP) Integrated to Inventory Considering Space Limitation

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An optimal supply chain management system has a direct effect on the performance of any enterprise and could result in substantial cost savings. Successful supply chain management involves many decisions relating to the flow of the products. The decisions fall into three levels: strategic, tactical, and operational differentiated depending on the time horizon during which the decisions are made. Since decisions at these three levels are interdependent, optimizing at individual levels will lead to sub-optimal solution for the network. In this study, location as a strategic decision is combined with two tactical decisions: routing and inventory. First, location and routing decisions are combined to form location-routing problem (LRP). LRP can be defined as solving the following three sub-problems at the same time: locating one or more plants and warehouses among a set of potential plants and warehouses, assigning customers to selected depots, and determining routes from selected depots to assigned customers to minimize the cost of the supply network. Then, to make further improvements in the network, it is proposed to integrate an inventory model under the fixed interval order policy to the LRP. Since in the real world application, warehouses are limited by space capacity, a third logistic party copes with the space limitation if needed. Moreover, it is assumed that customers demand their multi-products requirement under stochastic condition. To solve such a model a heuristic solution is proposed.

Expression of a Novel Follicle Stimulating Hormone Glycoform

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Gonadotropin hormones, luteinizing hormone (LH) and follicle-stimulating hormone (FSH), play a significant role in follicular development and maintenance of the estrous cycle. FSH specific function is to stimulate follicle growth and serve as selection factor for dominant follicles. FSH exists in two glycoforms di- and tetraglycosylated FSH. The diglycosylated FSH contains carbohydrates on α subunit only, while tetraglycosylated FSH has carbohydrates on both α and β subunits. Pituitary extraction of FSH shows that in young reproductive age women, the diglycosylated FSH is more abundant than tetraglycosylated FSH, whereas in post menopausal women have more pituitary tetraglycosylated FSH. Bioassay of diglycosylated FSH shows that it has greater biological activity than tetraglycosylated FSH. Due to limited availability of diglycosylated FSH, bacterial expression of recombinant FSH (rec FSH) is needed to provide sufficient glycoform for structure and biological study. The expressed FSH β is then separated into soluble and insoluble fractions, assuming that the soluble fraction achieves correct folding while the insoluble fraction is not. Our first attempted to refold crude recombinant hFSH β (rec hFSH β), reassociate with hCG α , and study its activity through receptor binding assay, demonstrated that it is possible to make rec hFSH. Although the refolding/reassociation reaction was insufficient due to using crude sample, we can improve the process by purifying the rec hFSH β . We are now progress toward pure hFSH β . For the soluble fraction of rec hFSH β , we are facing the challenge of seeing the protein through western blot. For the insoluble fraction, we obtained a relatively pure protein (>90%), but must be refolded for further analysis. Our next step is to refold and reassociate rec hFSH β with hCG α and analyze the protein function by receptor binding and steroidogenesis assays.

Teacher Training for Head Start Classrooms

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The goal of this study was to provide Head Start teachers with specific skills in developing positive relationships with students and in more effectively managing problematic child behavior in the classroom. The hypothesis was that teacher behavior management training (BMT) would reduce child problem behavior and create a more supportive social environment in Head Start classrooms compared to standard teacher practices, or treatment as usual (TAU). Ten teachers serving twenty classrooms in three centers received six hours of specialized training in addition to training as usual, while seven teachers serving fourteen classrooms in two centers received training as usual. Training as usual consisted of standard teacher training provided by Head Start. BMT entailed the addition of 6 hours of group teacher training grounded in “The Incredible Years: Promoting Positive Academic and Social Behaviors” approach, and individualized in-class mentoring. Repeated measures ANOVAs (group X time) were used to assess group differences in change in children’s behavior from fall to spring of the school year. There was a significant group X time interaction ($p = .013$) in observed rates of child disruptive and aggressive behavior which increased over time in the TAU group and decreased in BMT group.

Changes In Prevalence of Stress Urinary Incontinence In Morbidly Obese Patients Following Bariatric Surgery

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Purpose: Obesity in America is reaching epidemic stages. One underlying comorbidity of obesity is stress urinary incontinence. Stress urinary incontinence is defined as the state in which an individual experiences an involuntary loss of urine of less than 50 mL occurring with increased abdominal pressure. The purpose of this study is to examine the relationship between bariatric surgery in the obese patient and changes or lack of changes in their stress urinary incontinence. **Methods:** This retrospective chart study was administered through the Solutions of Life Surgical Weight Management Program at Via Christi. Only patients who had reported some level of urinary incontinence prior to bariatric surgery qualified for this study. Overall numbers of subjects was determined by the number of qualifying subjects. Patient's level of incontinence, Body Mass Index (BMI), and weight loss were measured before surgery and at scheduled intervals after surgery. **Results:** At this time, not all data have been collected and analyzed. All data will be statistically analyzed using Chi square and ANOVA methods. Significant relationships will be further analyzed. It is expected that the higher the percent of excess weight loss in a patient the better improvement in stress urinary incontinence. **Conclusions:** At this time, data analysis has not been concluded. Since stress urinary incontinence is linked to higher levels of intra-abdominal pressure, it is expected that decreases in intra-abdominal weight seen in bariatric surgery should lead to a decrease in the amount and prevalence on stress urinary incontinence in post-surgery patients

Physical Activity Levels of Students with Developmental Disabilities in the School Setting

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Background: Current guidelines recommend that school-age children accumulate at least 60 minutes of moderate to vigorous physical activity (MVPA) on most days of the week. However, little is known about the activity level of school-age children with developmental disabilities (DD) **Purpose:** To evaluate physical activity behavior patterns of children with DD during 3 school settings: adapted physical activity (APE, 55 min), classroom (CR, 55 min), and recess (RC, 25 min). **Methods:** Participants were 11 youth (5 boys, 6 girls, 9.5±2.1 yrs) with DD. Heart rate was measured by telemetry (S410™ Heart Rate Monitor, POLAR®) during APE, CR, and RC on three different days, respectively. HRs were downloaded to a computer via SonicLink™. RHR was measured on three days between 8 to 8:45 a.m. while the child was read to and rested on a beanbag. RHR was calculated as the mean of the 5 lowest HRs on the day that recorded the lowest RHRs (Logan et al., 2000). Time spent in MVPA was determined by the mean time spent (min) above 1.25 RHR ($\geq 1.25 \times \text{RHR}$) in the three school settings (APE, CR, and RC). **Results:** For these three settings, average time spent at MVPA was 86.9±25.1 min. **Conclusion:** Given that this only represents the morning session classes, these students were meeting and exceeding their recommended 60 minutes of MVPA during school days.

Addressing the Gender Gap in Student Achievement

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What affect do gender specific strategies have on student achievement in math? The question was researched in a 4th grade classroom setting where 4 classes were taught in a departmentalized situation. Of the 4 classes, 2 were selected to be the subjects for the research question. Of the 2 classes, 1 was the experimental group, the other, the control group. A student survey was administered to determine how students viewed themselves as achievers in mathematics and how effective they felt the gender specific strategies used during instruction were. Pre and post test over chapters in the textbook were also administered. The teacher also kept a reflective log to review lessons and the effectiveness of the gender specific strategies. The following techniques were implemented to foster results: using manipulatives, games, humor, and cooperative learning. The findings of this research indicate that students achieve equally well by instruction given with or without gender specific teaching strategies.

The Perceptions of Physician Assistants Regarding Doctorate Level PA Education

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Introduction: Many mid-level health care professions have implemented the clinical doctorate. The physician assistant (PA) profession has not implemented doctoral-level education. Furthermore, no research has been done on the PA profession regarding doctoral-level education in order to determine its appropriateness. Methodology: This cross-sectional study was designed to determine the perceptions of practicing PAs regarding the Doctorate of Physician Assistant (DPA). A survey was sent to a randomized sample of United States PAs that were in the database of the American Academy of Physician Assistants (AAPA). The results were analyzed using Chi-Square analysis and descriptive statistics. Results: The response rate for this survey was 23% (n=1,500). The majority of the respondents were not in favor of the DPA (55.8%). Additionally, the majority of the respondents believed that the master degree was sufficient for PA education, did not believe the DPA was necessary to deliver high standards of care, would not leave the field of PA if the DPA was required, and believed the DPA would not be needed to compete with nurse practitioners. Conclusion: The study results reveal a group of practicing PAs in the United States that do not favor the profession moving toward offering a DPA degree. These results are similar for other professions who have already moved toward doctoral education.

The Effects of Oral Assessments in the Classroom

Lindsay Fox

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The purpose of this study was to investigate the effects of an oral assessment in a high school social studies classroom. I wanted to focus on oral assessments because I have students that were failing or not meeting expectation on traditional written exams. Prior to performing my action research in class, I researched alternative assessments. After reading the research, I decided to do an action research project by conducting student interviews. The data that I collected during my action research project was a rubric, field notes/teacher observations, and a student survey. The results of the study concluded that the student interviews were a beneficial and successful tool in my classroom.

Optimization of Joint Maintenance and Spare Part Inventory Policies Using Large Scale Computer Simulation

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Machine breakdown is a major factor of production loss in manufacturing industries. After failure, machine brings to working condition by either repair or replacing failed machine component. Proper maintenance decision is important to achieve maximum machine availability with minimum maintenance cost. Maintenance decisions taken without considering available spare parts and possibilities of future failures can lead to production stoppages and higher WIP. In order to take perfect maintenance decision, amount of inventory waiting in a queue for production and available spare part pool for replacement of failed machine component are taken into consideration. Replacement is considered as more costly and less time taken activity than repair. A system is simulated using ARENA. Machine failure distribution, process time, time to repair, replace and repair, replace costs are input parameters for simulation model. Current queue length and available spare part pool are decision parameters. Number of simulations carried out for a fixed time interval under different values of decision parameters. Throughput and maintenance costs are collected for different combinations of decision parameters. A switching curve is drawn for different combinations of decision parameters. The curve indicates which maintenance decision to be taken for various cases.

The Effects of Kiln Atmosphere on Glaze Color and Texture

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This experiment studies the effects of the chemical colorants, red iron oxide Fe_2O_3 , copper carbonate CuCO_3 , cobalt carbonate CoCO_3 , titanium dioxide TiO_2 and rutile an iron contaminated titanium mineral in four different glaze bases. As a control group each glaze base will be fired without added chemical colorants. These glazes are then fired to cone 10 (2340°F) in four different kiln atmospheres: reduction, oxidation, soda ash Na_2CO_3 , and wood-soda ash. A natural gas kiln will be used to fire in reduction and the increase of forced air will produce an oxidation atmosphere. A natural gas kiln will also be used to fire the soda ash, which will be introduced into the kiln at 2300°F. A wood-burning kiln will be used to create a wood-soda ash environment where again the soda ash will be introduced into the kiln at 2300°F.

The expected results include a variation of color and texture in the different kiln atmospheres. The wood-soda ash atmosphere is expected to show the greatest variation in texture due to the fuel source that will allow wood ash to coat the ceramic tiles and melt adding additional textural rivulets of glaze material. The oxidation environment will show the greatest difference in color variation especially within the glazes containing the addition of copper carbonate CuCO_3 .

Test results from each group will be displayed for visual and tactile inspection.

Determination of Carbon Monoxide Detector Location in General Aviation Aircraft to Improve Safety

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There are many sources of carbon monoxide (CO) leakage into the cabin of General Aviation (GA) aircraft. Exposure to CO, which is part of the engine exhaust in General Aviation (GA) aircraft, can impede the pilot's ability to direct the airplane leading to accidents. In order to prevent such accidents, an electrochemical CO detector can be used to alert the pilot to the presence of CO. The objectives of this study are to identify ambient levels of CO during normal operating conditions and to determine the best location for CO detector placement in GA aircraft. Early CO detection as well as visibility and accessibility of the detector are some of the parameters involved in determining the optimum CO detector location. Considering these issues, five detector placement locations were considered: visor, instrument panel, leg area of front seats (left and right sides), and rear seat. Field tests to monitor CO levels during GA flights were conducted at Kansas State University at Salina using data logging CO detectors. The results from these measurements have been categorized according to several different variables and then analyzed statistically. Measurements taken so far during the summer and early fall indicate that the majority of CO exposure events occurred on the ground before take-off. During such ground-based CO exposure events, the timing was consistent with open windows allowing exhaust fumes to enter the cockpit area. The final paper will also discuss the results of additional measurements taken during the winter months when other modes of CO exposure may be involved.

Review and Classification of Kansei Engineering and Its Applications

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Using customer requirements and needs in the product development process has become a major subject in quality engineering. Many scholars have tried to develop systems that enable product developers and designer to consider customer requirements during the design process. Among them, Kansei engineering is the first to consider customer feelings as input in the design process. Kansei engineering is a Japanese word which doesn't have an exact synonym in English but can be interpreted as sensibility, feeling, or aesthetics. Kansei engineering was originated in Japan around 1970. Although applications of Kansei engineering began from automotive industries, nowadays many other industries such as electric home appliance industry, office equipment industry and so on, have made extensive use of Kansei engineering. There are six techniques for the implementation of Kansei engineering concept: Category Classification, Kansei Engineering System, Kansei Engineering Modeling, Hybrid Kansei Engineering System, Virtual Kansei Engineering, and Collaborative Kansei Engineering. These techniques differ from each other in their approach to apply Kansei engineering in different development process situations in terms of information availability, complexity, and required performance.

Extensive Arthroscopic Release of The Stiff Total Knee to Improve Range of Motion After Arthrofibrosis

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Introduction: A retrospective chart review was conducted on patients that had undergone a total knee arthroplasty (TKA) done by the same orthopedic surgeon and subsequently were referred to a different surgeon who performed a diagnostic arthroscopy for debridement of soft tissue problems following the replacement. *Methodology:* Twelve patients met criteria for inclusion in the study; however 6 patients were subsequently excluded. All of the hardware used in the first surgery were of appropriate size and position and no revision. All of the patients considered for this study suffered from arthrofibrosis following the (TKA) resulting in decreased range of motion and stiffness. The debridement included lysis of adhesions, release of the lateral retinaculum, fat pad revision, and a synovectomy. Some patients also required manipulation under anesthesia during the arthroscopy. Following the debridement, all patients were sent to physical therapy to continue increasing range of motion (ROM) and to prevent the formation of additional scar tissue lesions. *Results:* The mean ROM for pre-operative extension improved from 24 ° to a postoperative ROM 3.66°. The average improvement of extension was 25.33 °. The mean improvement in ROM for flexion improved from 88.33 ° to 106 °. The average improvement in flexion was 17.66 °. *Conclusion:* Overall all patients were satisfied with the results. All patients had improvements in range of motion and decreased pain ratings.

Transport of Tryptophan and Tryptophan Derivatives into Neuronal Cells

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Human neuroblastoma cell line, SH-SY5Y, and fused rat embryonic ventral mesencephalic and neuroblastoma cell lines, MN9D, are commonly used catecholaminergic models in studies related to neurotoxicity, oxidative stress, and neurodegenerative diseases. Specific transport of monoamine neurotransmitter precursors i.e. corresponding aromatic amino acids, into these cells is essential for cellular metabolism. Serotonin (5-hydroxytryptamine) is a neurotransmitter synthesized in the brain that is implicated in many brain disorders such as Schizophrenia and manic depression. Serotonin is synthesized from tryptophan (Trp) in serotonergic neurons. In the present study we have examined the uptake of tryptophan (Trp) into SH-SY5Y and MN9D cells by reverse phase high performance liquid chromatography coupled with UV detection. While Trp was not taken up by MN9D cells, it was taken up by SH-SY5Y cells with high efficiency. The K_m of Trp transport of SH-SY5Y cells was $77.3 \pm 12.6 \mu\text{M}$ and the V_{max} was $2353 \pm 122 \text{ pmol/mg protein per minute}$. The Trp uptake was inhibited by a specific inhibitor of non-specific aromatic amino acid system L providing evidence that Trp was entering the cells via transport system L.

Wichita Youth Empowerment Partnership: A Community Assessment of District One

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District one of Wichita Kansas is primarily formed by African American population and faces multiple economic and social challenges that require greater collaboration and improved capacity of local faith-based (FBO) and community-based organizations (CBO). The Wichita Youth Empowerment Partnership (WYEP) is an initiative facilitated by the Center for Community Support and Research at Wichita State University (WSU) and includes 10 partnering faith-based and community-based organizations (FBCBOs) that address youth violence and gang activity in district one of Wichita, Kansas. One of the long-term goals of the project is the promotion of youth empowerment in Wichita, especially, by working with ethnically diverse youth. A participatory community assessment was conducted during the first stage of this initiative to obtain information, from the youth perspective, to establish future directions for services and activities of the organizations. This research was a participatory process that integrated mixed methods to collect information: Youth survey, focus groups, photovoice, and archival data. Information obtained was quantitatively and qualitatively analyzed. Adult collaboration and inclusion of a youth research team were central aspects; youth research team was formed by youth of ages of 9 to 18 years-old who participate in the diverse organizations WYEP. Findings of the community assessment were integrated in a report.

Utilization of mid-level providers in trauma centers: a national survey

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Introduction: National census data published by professional organizations indicates that an increasing number of physician assistants (PAs) are working in the subspecialty of trauma surgery. *Methods:* A cross-sectional study was conducted to determine the prevalence and utilization of MLPs (PAs and nurse practitioners) on the trauma service was mailed to 464 U.S. trauma centers *Results:* 246 surveys were returned for a response rate of 53%. A slight majority of trauma centers utilize MLPs for direct patient care (54.7%). Chi Square analysis suggests that ACS verified facilities utilize MLPs proportionately more than non-verified facilities and that Level I trauma centers use proportionately more MLPs than Level 2 trauma centers ($p < .05$). In the majority of the trauma centers, MLPs appear to be utilized to perform traditional duties performed with fewer MLPs performing invasive procedures. In addition, 29% of respondents who do not currently utilize MLPs indicated that they intended to utilize them in the future. *Conclusion:* Results of the study indicate that the surgical subspecialty of trauma will continue to be a source of potential job growth in the future for MLPs.

Heart Rate Changes Comparing Free Weight VS Elastic Resisted Tubing

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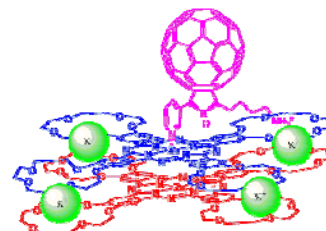
During lifting, heart rate and blood pressure have been known to rise because of an increase in intra-abdominal pressure. This increase in pressure is known as a Valsalva maneuver. However, little research has been conducted to compare heart rate changes that occur with traditional weight lifting versus elastic band resistance. We therefore examined changes in heart rate that occurred while lifting free weight compared to lifting with elastic band resistance. 33 healthy subjects with an age range of 18-40 were tested. Heart rate changes were recorded using a 12 lead EKG, with a baseline measurement established before lifts were performed. Testing consisted of subjects lifting roughly 40 % of their body weight from the floor to waist height and then returning the weight to its original starting position. All subjects alternately performed lifts with both free weights and elastic bands. Subjects were required to rest between lifts to allow heart rate to return to baseline measurement. Heart rate (HR) did increase significantly in both the free weight and elastic band resisted groups when compared to baseline measurements. A mixed 2-way ANOVA will be used to determine if there is a significant difference in HR changes between the 2 lifts. No significant difference in HR changes is expected when comparing the free weight resistance to the elastic band resistance.

Design and Studies of Self-Assembled Cofacial Zinc Phthalocyanine Dimer Complexed with Fullerene(s)

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Development of supramolecular systems capable of performing specific functions is to mimic the features adopted by the natural systems in carrying out the desired tasks. The sequential multi-step electron transfer of the bacterial photosynthetic reaction centers realizes the efficient conversion of light energy into chemical energy.



However, modeling the primary electron donor, a 'special pair' has been limited to only a few studies due to the complexity in synthesizing such molecules. In the present study, building novel supramolecular 'special pair' donor-acceptor conjugates will be presented. The 'special pair' was obtained by potassium ion induced dimerization of tetra 15-crown-5 appended zinc phthalocyanine. Subsequently, the electron acceptor, fullerene was linked to the donor via axial coordination, as shown in the figure above. The presentation will focus on the synthesis, characterization, potassium ion induced dimerization, and electron donor-acceptor assembly formation. Further, photochemical results revealing charge separation in these novel systems will be presented.

The Impacts of Greenhouse Gas Regulation on the Electric Power Industry

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It is estimated that the United States is the source of one-fourth of the world's greenhouse gas (GHG) emissions and that the electric power industry accounts for one-third of the nation's GHG emissions. Meanwhile, power industry accounts for 38 percent of the nation's overall carbon dioxide (CO₂) emissions, equivalent to 2.2 billion metric tons. Although the U.S. signed the Kyoto Protocol but did not ratify, several initiatives have been proposed to treat the important issues of GHG emissions in the United States. For example, California has passed two legislations (Assembly Bill 32 and Senate Bill 1368) to aggressively reduce California's greenhouse gas emissions. Given the GHG emissions contribution of electric power industry, electric power industry should be considered a target of GHG regulation. This paper will discuss how GHG regulations will affect the power system, both technically and economically, and how those regulations may best be met using available sources and technology.

The Effect of Rereading Text at a Student's Instructional Level Upon Reading Fluency

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The purpose of this study was to determine the effect of repeated readings of text at a student's instructional level upon reading fluency. The participants for this study included seven third grade students who were reading below grade level and below the fluency norms for beginning third graders. The participants included three girls and four boys, ages 8 to 9. Data was collected using leveled readers, weekly running records for fluency from a pretest and a posttest, student completed graphs, and a pretest and posttest measurement of reading comprehension using the Scholastic Reading Inventory. The main findings indicated that explicit fluency instruction, engaging students in rereading text, and modeling fluent reading do positively impact reading fluency.

Implementation of Sepsis Guidelines in Kansas Hospitals

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Background: In 2003 the Surviving Sepsis Campaign (SSC) was established as a collaborative effort between: the European Society of Intensive Care Medicine, the Society of Critical Care Medicine, and the International Sepsis Forum to reduce the mortality of severe sepsis and septic shock by 25% by 2009. A resuscitation and a management bundle, were drafted based on research findings and clinical experience in an effort to aid clinicians in the management of sepsis. There is little data evaluating the awareness and implementation of these bundles in the clinical setting, specifically the ED.

Methods: This is a cross-sectional survey which will be mailed to a representative of each ED in all Kansas hospitals. A repeat survey will be mailed to non-responders six weeks after the initial survey. All responses will be de-identified. The data collected consists of: respondent characteristics, hospital characteristics, capability to implement laboratory tests and specified procedures, calculation and use of APACHE II scores, availability and use of Xigris, transfer distance for patients requiring intensive care, and familiarity with SSC guidelines. Analysis of knowledge, capability, and practice will be done along with stratification of hospital size by number of total beds. Regression analysis will explore potential factors that predict application of the treatment bundles.