

Undergraduate Research Symposium 2005 Abstracts

(Note: Student(s) are listed on second line, faculty advisor(s) on third line.)

Isolation of the Gene Encoding *Listeria monocytogenes* HMG-CoA Reductase

Elise Amanti
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Chemistry

Listeria monocytogenes is a Gram positive bacterium which has the ability to be mobile by the use of flagella. This bacterium has been found in at least 37 mammalian species. It can be isolated from soil, silage, and other environmental sources. *L. monocytogenes* resists the poison effects of freezing, drying, and heat remarkably well. Most *L. monocytogenes* are pathogenic to some degree. The strain and susceptibility of the victim is believed to vary upon the infective dose of *L. monocytogenes*. A common disorder called Listeriosis is originated by *L. monocytogenes*. This organism is isolated from the blood, cerebrospinal fluid, placenta, and fetus. Some common side effects of listeriosis are meningitis, septicemia, still birth, and many more. Our goal is to stop *Listeria* from its capability of growing. It is to our advantage to research for a certain target enzyme(s) which may be involved to help prevent the growth of *Listeria* to help improve food safety. The enzyme 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase catalyzes the conversion of HMG-CoA to mevalonate, which is the rate-limiting step in the synthesis of cholesterol and isoprenoids. The enzyme is found in both eukaryotes and prokaryotes and an analysis has discovered two classes of HMG-CoA reductase, the Class I enzymes and the Class II enzymes. The goal of our research is to isolate the gene encoding *L. monocytogenes* HMG-CoA reductase, express the recombinant protein and analyze the catalytic properties of the enzyme.

Individual Differences in Aggressive and Prosocial Responding

Jennifer Annen
Renée Tobin

Psychology

Past research suggests that individual differences in personality, specifically in aggression and prosocial attitudes, are related to how children interpret interpersonal situations (Dodge, 1980). Agreeableness may be one individual difference in children's personalities that is related to children's responses to interpersonal situations. Agreeableness has been defined as the motive to maintain smooth interpersonal relations (Graziano & Eisenberg, 1997). The present study focuses on the individual differences in children's Agreeableness and its relation to their responses to conflict situations (Graziano, Jensen-Campbell, & Hair, 1996; Jensen-Campbell & Graziano, 2001). There were two phases in this study. The first phase involved administering the Big Five Inventory (BFI; John & Srivastava, 1999) to children. We also assessed Agreeableness by administering the Big Five Inventory to the parents and teachers of the children in the study. In the second phase, children reacted to ambiguous, accidental, and hostile situations presented to them in video clips. The reactions to these clips were recorded to assess their interpretations of these situations. The reactions were then coded based on Dodge (1980). A total of 72 participants ranging from ages 5 to 11 completed the study. The main hypothesis was that children who were rated high in Agreeableness would interpret the ambiguous clip as more prosocial than would the children low in Agreeableness. After discussing the results of this study, we also address future directions for research aimed at understanding the responses of children and their relations to individual differences in personality.

Aerial Embryonic Development and Synchronous Hatching in the Euryhaline Killifish, *Fundulus heteroclitus*

Jamie Baldwin, Kevin Kocot

Biological Sciences

Robert Preston, George Kidder, Christopher Petersen

Spawning of the euryhaline killifish, *Fundulus heteroclitus* macrolepidotus, often occurs at the peak of spring tides with the embryos developing in moist air in approximately two weeks. In the laboratory, oocytes and sperm stripped from wild caught fish were combined in 10‰ artificial seawater (ASW), and incubated at 20°C over 10‰ ASW. These embryos developed as described by Armstrong and Child (Biol. Bull. 128:143, 1965). Egg development typically slowed near stage 35, and eggs synchronously hatched when triggered by flooding. We hypothesize that O₂ diffusion may be rate limiting in submerged embryos; we incubated eggs in moist air, under 2 mm of 10‰ ASW, and under 17 mm of 10‰ ASW. After day 14, all plates were flooded daily with 10‰ ASW to test for hatching. As hatching occurred, fry were measured daily with an ocular micrometer. Aerial incubation produces higher hatch rate, earlier hatching, and larger fry as compared to either submerged condition. In a separate series, O₂ uptake under these conditions increased from 10 to 240 ml/kg/hr over 10 days, declining thereafter until hatching was triggered at 14 days. The larger fry from aerial incubation suggest a more efficient metabolism, since stored foodstuffs were constant between eggs. This suggests a role for anaerobic metabolism in developing embryos under adverse conditions. While aerial incubation is not the only mode of development in the wild, its success under laboratory conditions allows rearing of large numbers of synchronized fry for experimental uses. (NSF 0111860)

Emotional Reactions to Stigmas

Andrea Ball, Charles Coey, Lisa Davidson, Ellen Herion, Anna Laskowski, Rebecca Lynn, Michael Strang

Psychology

John Pryor, Maria del Prado Silvan Ferrero

The present study investigates participants' moment-by-moment reactions to and emotional responses towards people with a variety of stigmas. Stigmas tested included predetermined levels of high, medium, and low controllability. Hypothesis stated that more controllable stigmas would elicit stronger negative emotional responses. Two-hundred participants were asked to indicate their willingness to interact with persons of varying stigmas, such as HIV/AIDS, cancer, and obesity, on a computer related task where cursor movements were measured. Participants moved a computer cursor toward or away from people with stigmas over a 10 period. Initial movements were thought to indicate reflexive psychological processes and later movement were thought to indicate rule-based psychological processes. After completion of this task, participants were given a questionnaire to assess their specific emotional reactions to these stigmatizing conditions. Emotional responses were categorized into positive, negative, and uncertain dimensions. For example, positive emotions included empathy or tenderness. Negative included anger and disgust and uncertainty included uncertainty and surprise. Results indicate a strong correlation between emotional responses and the controllability of the stigmas. The hypothesis was supported, finding that responses were more positive in relation to uncontrollable stigmas and more negative in regards to stigmas that were perceived to be more controllable, such as drug addiction. Furthermore, initial reactions to stigma were likely to be correlated to positive emotions. This finding may contradict the notion that reflexive responses to stigmas are necessarily negative. This finding will be discussed in more detail.

Continued Kinetic Study of Di- and Tri-propionate Substrates Using the Cloned, Purified Enzyme Coproporphyrinogen Oxidase

Reyna Barto

Chemistry

Marjorie Jones, Timothy Lash

Coproporphyrinogen Oxidase (CO) is an important enzyme in the heme biosynthetic pathway. Defects in the enzyme and other enzymes in the pathway lead to diseases known as porphyrias. CO catalyzes the conversion of coproporphyrinogen III (CIII) through two oxidative decarboxylations to yield, first, harderporphyrinogen (monovinyl) and second protoporphyrinogen IX (divinyl). The mechanism (substrate selectivity and catalytic mechanism) by which coproporphyrinogen oxidase works is still unknown. To understand the substrate selectivity by CO, we are evaluating the active site by using di- and tri-propionates as substrates for the enzyme. We are testing a series of these synthetic analogs (Figure available on poster)(diEt, diMe, diPr, diBu, 13Et, and 17Et) for their ability to fit into the active site by obtaining kinetic data. In a previous study done using the same analogs with a crude form of the enzyme, 17Et was converted into divinyl product whereas the other analogs tested resulted in monovinyl, but not divinyl product (1). In the current study, we are using the cloned, purified form of the enzyme which should allow the evaluation of the kinetic parameters Km, Kcat, and Kcat/ Km. The kinetic data will allow determination of those substituents on the substrate which are necessary for the enzyme to recognize, bind, and catalyze the reaction. Using the purified enzyme, 17Et yielded divinyl product whereas 13Et yielded just monovinyl product. The apparent initial velocity (V0) of 17Et was calculated as 6%P/min which is relatively lower than that of CIII which is 13.9%P/min. The V0 of 13Et was calculated as 46.4%monovinyl P/min. Now, work is in progress to analyze the Km, Kcat, and Kcat/Km for 17Et and the other analogs.

References:

1. Jones, M.A., He, J., and Lash, T.D. (2002) Kinetic studies of novel di- and tri-propionate substrates for the chicken red blood cell enzyme coproporphyrinogen oxidase. Japanese Biochemical Society. 131, 201-205

Save the Farms

Kim Behrens

Communication

Jennifer Parker

Save the Farms is persuasive speech informing audiences of the increasing amounts of disappearing farm land. Industrial corporations are expanding their businesses and in turn, filling the natural landscape with man made constructions. This high increase of urbanization is causing farmers to surrender their fields and putting them out of business. But we need food to survive, and without farmers there is no food. The speech creates awareness of this prevalent problem and encourages people to support their farmers through farm reforms and local organizations.

Experimental Coupling of Laser Light with a Plasma Discharge

Justin Berry, Thomas Juskevics

Physics

Epaminondas Rosa, Brian Clark

Our group is exploring the possibility of embedding signals in a chaotic plasma discharge which has potential communications application. To do this we are using the laser optogalvanic effect, a spectroscopic technique in which light from a laser interacts with excited atoms in a plasma discharge. Absorption of the laser light by the atoms results in an increase or decrease in the electrical current driving the discharge. We are exploring ways to modify the characteristics of the plasma using the laser light. We use a hollow cathode lamp, in which a discharge is maintained between the lamps cathode and anode. The lamp contains neon gas and some of the neon atoms are excited into an energy level designated the 3S state. The laser light further excites the atoms from the 3S state to the 3P state. We discuss the role of laser excitation rate, tuning, and atomic collisions on the plasma discharge current. Our experiments also show that the plasma may synchronize to the laser when the laser wavelength is periodically varied. Chaotic behavior of the laser perturbed plasma is also explored.

Extended Diffusion Theory for Light Scattering in Milk*

Trisha Blood

Sunish Menon, Q. Su, Rainer Grobe

Physics

To extract optical properties of a turbid medium from experimentally collected light scattering data, we have explored theoretically the propagation of a light pulse in a heterogeneous medium, such as milk. From the theoretical point of view the process can be modeled by assuming that the laser photons perform a random walk type motion. We have developed a Monte-Carlo algorithm [1] to simulate a laser pulse in a time-dependent turbid medium such as milk. The computer simulations are designed to get a better understanding of how spatial in-homogeneities that are embedded inside the milk modify the propagation dynamics and how they can be detected. I will also describe our attempt to extract optical properties such as the absorption and scattering coefficients as well as the anisotropy from the experimental data. [2-3]

* Supported by grants of the NSF, Research Corporation, Illinois State URG and Honors Program.

[1] For related work see <http://omlc.ogi.edu/software/mc/index.html>

[2] S. Menon, Q. Su and R. Grobe, Opt. Lett. (in press).

[3] S. Menon, Q. Su and R. Grobe, Phys. Rev. Lett. (in press).

Associations Between Childhood Play Experiences, College Student Sex Roles, and Career Decisions

Gabrielle Blossom, Andrea Smith

Margaret Nauta

Psychology

The purpose of this study was to determine antecedents to college students' sex roles (beliefs about the self as masculine, feminine, or androgynous) and to see how sex roles, in turn, were associated with their choices of academic majors, career goals, and career decision-making difficulties. Among 244 ISU college students (79% female; 21% male), masculine sex roles were associated with memories of having played with creative toys (e.g., art supplies) and engaged in physical activities (e.g., sports activities) as a child. Feminine sex roles were associated with memories of having engaged in childhood language-promoting activities (e.g., reading books), creative play, and social play (activities involving interactions with others). Androgynous sex roles were associated with physical and creative play. The traditionality of parents' occupations was not associated with their children's own sex-roles. Masculine sex roles were associated with less likelihood of having a traditionally-female major, where feminine sex roles were associated with less likelihood of having a traditionally-male major. Masculine and androgynous sex roles were associated with a desire to be a leader in one's career field in the future, whereas feminine sex roles were not associated with a desire for leadership. Those with highly masculine sex roles perceived little need to engage in additional self-exploration regarding career choices and experienced little career indecisiveness. Highly feminine sex roles were associated with a greater perceived need for career information, and greater need for self-exploration, but less career choice anxiety. Finally, androgynous sex roles were negatively associated with career choice anxiety and with generalized indecisiveness. In summary, college students' sex roles appear to be more highly associated with childhood play and activities than with their parents' choices of occupations, and sex roles are associated with college students' own career goals, plans to become leaders, and career decision-making difficulties.

The Tide is Never the Same: The Changing Roles of Women in Coastal Ecuador

Stefanie Brodecki

Gina Bessa

Sociology and Anthropology

Globalization and industrialization of traditional economies impacts all aspects of society but none more than the roles of women. In this paper I discuss the changing economic and social roles of coastal Ecuadorian women. I demonstrate how the increase in globalization and industrialization has altered the gender roles of the Ecuadorian women; especially when it comes to the decision of going to work or staying at home. In increasing numbers, women are entering the workforce and allowing less time for their traditional household chores. One activity that has been significantly changed is food preparation. In some households this activity is now done in haste after a woman comes home from work. Traditional meal preparation is a leisurely event and creates time for women to bond with their daughters, and with guests helping cook. Although preparing food is a task which has been done for thousands of years, it is a social role that has been altered since women started going into the workforce. In order to understand the changes in women's roles, I collected data for this project on a field school during the summer of 2004. Globalization and industrialization are changing women's roles in coastal Ecuador and it is important that we document these changes and explore their effects on the rest of society.

Current Assessment Methods for Treatment of Abused Individuals

Kenya Brown, Kristin Roeing

Daniel Graybill

Psychology

This research examined the various methods in which experts and non experts employ in the assessing and treatment of individuals who have been abused; sexually, physically, mentally, and neglected. Information has been presented regarding the prevalence of abuse, its effects/characteristics, and the most common methods of treatment. The statistical data used in the research was gathered from a random sample of practicing professionals from the American Counseling Association 1996 Membership Directory. Concluding data illustrate that practicing professionals use correct methods of assessment to determine a plan of treatment for those who have been abused. Furthermore, both experts and non experts use the interview method most frequently in the assessment of abused children and

The Critical Analysis of Madonna's ReInvention World Tour

Jordan Bryant
Jennifer Parker

Communication

Madonna has long been considered the poster child of postmodernism; however, as the pop-icon becomes more concerned with a particular social agenda, the less she operates within the postmodern paradigm. Not only has Madonna been the source of continual scholarship, but she continues to influence the masses on a multitude of issues, especially the controversial study of Kaballah. Questioning the approach Madonna uses (The ReInvention World Tour) helps to show how iconic communication infiltrates public consciousness and how message content impacts this process. Summarizing Cathy Swictenberg's Postmodern Feminist model, we will see how Madonna's shift in social paradigm could change our social perception.

Experimental Studies of Light Scattering in Milk*

Sawyer Campbell
George Rutherford, Brian Clark, Q. Su, Rainer Grobe

Physics

We have explored experimentally the propagation of a light pulse in a heterogeneous medium, such as milk. Using a (LabView) computer controlled translation stage we are able to collect scattered light from the input diode laser beam over 6 orders of magnitudes in intensity. We will also describe our first experiments to determine the scattering and absorption coefficients as well as the anisotropy of milk for various concentrations by measuring the scattered or absorbed light intensity as a function of the source-detector spacing. This apparatus will be used in the near future to study other proposed light scattering experiments and possible bio-optical imaging algorithms. [1,2]

* Supported by grants of the NSF, Research Corporation, Illinois State URG and Honors Program.

[1]M.S. Bell, A.F. Lewis, R.E. Wagner, Q. Su and R. Grobe, Laser Phys. 13, pp. 207-212 (2003).

[2]S. Menon, Q. Su and R. Grobe, Phys. Rev. Lett. (in press).

Dichotomized Sexes

Patrick Carberry
Jennifer Parker

Communication

The logical fallacy of false dichotomy tells us that the answer to any given question cannot only be A or B. Not only do we have C-Z to worry about but asterisk through exclamation. An example of false dichotomy would be: at Ben and Jerry's you can either choose chocolate or Vanilla, politically, you can vote either democratic or republican, and when you are born you are either a pink baby or a blue baby. All of these scenarios are marginally true, and are examples of false dichotomies. The false dichotomy between man and woman, while ubiquitous, is an example of an unsound argument. Biological sex in human differs, just like any other human feature. According to Sharon E. Preves in her 2003 book "intersex and identity" "Nearly two percent of all children born are born with chromosome, gonad, genital, or hormone features that could be considered intersexed: that is these children are born with ambiguous genitalia, sexual organs or sex chromosomes." The definition of what is man and what is woman is very stringent in our society, so when you apply the human variation that inevitably occurs to these unyielding definitions you will undoubtedly leave people out. Preves goes on to explain that socially defined sex is cross-culturally accepted as a basis for identity as well as plays huge role in the construction of any society. Clearly, everyone in this room right now has a visually defined sex and gender, and with the mass quantities of legal debates concerning the biological sexes of male and female it is crucial that appreciate what those terms entail. Therefore, in order to better understand the actual nature of biological sex we will first ask: if male and female are not the only sexes... what else is there? Next we will take a deep look at the legal depiction of biological sex, and lastly, find some of the drastic implications that this new understanding of sex could yield.

Understanding Non-Linear Resonances*

Kareem Carr
Q. Su, Rainer Grobe

Physics

The impact of relativity on the maximum velocity of a driven harmonic oscillator under near resonant conditions is investigated. We find that the shape of the resonance profile is characterized by a very abrupt asymmetric drop [1] as a function of the frequency of the external force field. We explore the corresponding orbits within a small amount of deviation to either side of the drop and find that the separation between the orbits in phase space diverges exponentially for certain periods of time followed by periods of exponential convergence. The physics of such a non-linear behavior seems to be universal both in the velocity as well as the coordinate variables. [2] The study of non-relativistic driven anharmonic oscillator, for example, shows a similar resonance profile.

* Supported by grants of the NSF, Research Corporation, Illinois State URG and Honors Program.

[1]R.E. Wagner, Q. Su and R. Grobe, Phys. Rev. Lett. 84, 3282 (2000).

[2]K. Carr, M.V. Fedorov, Q. Su and R. Grobe, Phys. Rev. A in preparation.

Interaction with Bulimia

Julie Cary, Brandon Allbee
Karen Pfost

Psychology

Insufficient research has been generated regarding the similarities of persons who suffer from eating disorders and their characteristics. Our future study will hopefully focus in on which type of persons are most commonly stricken with this disorder, specifically bulimia nervosa. Using a hierarchical regression analysis we want to examine six predictors of bulimic symptoms and their interaction. This study will correlate factors such as normal-range personality characteristics like introversion-extroversion, preference for stability or change, and dominate domain (cognition, affect, or behavior), coping behaviors, perfectionism, the degree to which people objectify their bodies, identification with feminist ideology, gender orientation (masculinity, femininity, and androgyny). These factors have been found in previous research to be predictors of bulimia nervosa, thus supporting our current concentration in how these factors relate to one another. We plan to blend the individual measures that test for each factor into one vast measure and administer it to, two to three hundred (200-300) college-aged female participants.

The Effect of College on Religion

Paula Caviness
Richard Stivers, Jim Skibo

Sociology and Anthropology

The liberalization of religion is thought to be more acute within the university setting. To investigate this issue, I studied a nondenominational Christian campus religious group. Through the use of interviews and participant observation, I documented familial history in belief and practice of religion and the changes that have occurred once they entered college. Focusing on upperclassmen, which can better show this change, I examined whether there was a shift toward a more liberal version of religious belief. Previous research has shown that changes in individual worldviews stays with the person throughout his life.

Agreeableness and Emotional Experience

Jill Cheney, Leah Reed
Renée Tobin

Psychology

Previous research identified a connection between individual differences in personality and emotional responding. Agreeableness, defined as the motive to get along smoothly with others, has been specifically linked to positive conflict resolutions (Jensen-Campbell & Graziano, 2001; Graziano, Jensen-Campbell, & Hair, 1996) and efforts to regulate negative emotion (Tobin, Graziano, Vanman, & Tassinari, 2000). Based on the results of Tobin et al.'s (2000) second study, Agreeableness and sex were both found to be significant predictors of efforts to control negative emotions and overall emotional experience. The present study is aimed at replicating and extending the Tobin et al. (2000) findings by examining Agreeableness as a predictor of emotional responding to both positive and negative stimuli. A total of 210 participants viewed a series of slides taken from the International Affective Picture System (IAPS; CSEA-NIMH, 1995). Based on previous research, these slides have been established as evoking positive, negative, and neutral emotions. During the slide activity, participants were required to complete an Affect Grid and a slide reaction questionnaire to assess their emotional experience and regulation efforts. They also described each slide to a partner (either a friend or a stranger) via a video camera. Participants' verbal and nonverbal responses were coded using two standardized coding systems, the Emotional Expressive Behavior Coding System (EEB; Gross, 1996) and the Linguistic Inquiry Word Count program (LIWC; Pennebaker, 2001). Through future data analyses we expect to find relations between self-reports of Agreeableness and emotional word counts, facial responding, and self-report measures of emotion expression.

Adult Attachment Q-sort: Initial Psychometric Properties

Alicia Chin, Megan Miles, Lisa Wallin, Andrea Winner
Gary Creasey

Psychology

Attachment experiences with principal caregivers become internalized as generalized attachment representations (GAR) (Bowlby, 1988). GAR are conceptualized as “operable” models of self and attachment partner, and serve to “regulate, interpret, and predict both the attachment figure’s and the self’s attachment-related behaviors, thoughts, and feelings” (Bretherton & Munholland, 1999). The validity of the construct is underscored by fact that GAR security is associated with parenting behavior, infant attachment, and marital stability (Creasey, 2002).

Unfortunately, the methods used to assess GAR are time consuming (e.g., interviews) or have questionable validity (e.g., attachment style questionnaires) (Treboux et al., 2004). To address these concerns, we conducted a study to test the reliability of an alternative attachment measure. The Adult Attachment Q-sort (AAQS; Creasey, 2004) constitutes a 100-item card sorting method that provides an assessment of insecure/secure generalized attachment representations. The goal of the AAQS is to assess performance of major GAR outcomes; performance of the attachment system pertaining to the adult-caregiver relationship, and self-functioning. The adult-caregiver relationship is assessed via 4 scales; for example, one scale pertains to the emotion tone interactions of typical interactions with a parent (e.g., happy or anxious). Self-functioning is also assessed via 4 scales; for example, one scale measures how competent one functions as an attachment figures towards others.

For our Psy. 390 project, we collected initial psychometric data on this instrument. College students completed the AAQS by considering their relationship with their mother or father. When completing the AAQS, participants are asked to consider if items are “Not at all like me”, “Somewhat like me” or “Not at all like me”. Eventually, the participant must sort the cards into 9 card stacks fitting a normal distribution, for example, only 5 cards can go into the far left pile (“Never, never like me”). Items in each stack receive a score ranging from 1 to 9. The participants also completed 2 widely used, self-report attachment questionnaires.

The results of this study were encouraging. Participants that endorsed more secure attachment on the questionnaires received higher security scores on the AAQS than more insecure people. In addition, a factor analysis revealed integrity for the theoretical factor structure of the AAQS, and many of the items displayed good item reliability. Although these initial results are encouraging, future work is needed to determine if the AAQS is more or less valid than existing attachment measures.

Perceived Aggression in Persons Linked with Mental Illness: Does Timing of the Response Make a Difference?

Shannon Chrismore
Glenn Reeder, John Pryor

Psychology

The present study examined perceived aggression in a person who appeared to be recovering from a mental illness. The media often portray the mentally ill as aggressive, and as a result, it is likely that people expect persons with a mental illness to be aggressive. To test these expectations, participants watched a videotape depicting a target person leaving either a dentist’s office or a psychiatrist’s office and later engaging in an ambiguously aggressive behavior. Some participants made judgments about the target person’s behavior immediately, whereas others were asked to think about their responses. When the target person was shown leaving a psychiatrist’s office (linked with mental illness), his behavior was rated as more aggressive than when he was shown leaving a dentist’s office. Ratings of fear (i.e., “How fearful of Harry would you be?”) and danger (i.e., “Harry is dangerous.”) were affected by time. Specifically, when the participants were asked to rate the target person’s behavior immediately, they rated him more dangerous and felt more scared of him when he had the mental illness stigma (as opposed to being a dental patient). On the other hand, when participants were asked to think about their responses, there were no significant effects between the type of doctor (psychiatrist vs. dentist). When research participants are given time to prepare their answers, political correctness may lead people to control their prejudice toward a stigmatized group of people, thereby making them wary of responding negatively on a questionnaire.

Difference in the Future Family Aspirations of Male and Female College Students

Hallie Cohen, Lindsey Schultz, Ann West, Katrina Gofron, Sarah Bushman
Jean Memken

Family and Consumer Sciences

The purpose of this research is to compare male and female college students in terms of their future family aspirations. Specifically, it was hypothesized that female college students will aspire more to have a future family than male college students. Also, that female college students will aspire to have a future family with children earlier than male college students. A convenience sample of 350 Illinois State University students completed a survey regarding their aspirations for a future family. Respondents were asked to identify gender and answer a series of questions. Chi-Square analysis was used to test the hypotheses. This research has major implications to family and consumer sciences professionals and anyone interested in this field of study.

Read, Exceed, and Succeed

Chaas Collins
Jill Freund-Thomas

Geography-Geology

Why has the annual high school drop out rate been decreasing since the late 1990's? Could it be that children are changing their playtime habits from outdoor activities to reading the pages of the Da Vinci Code? In 2001 the high school drop out rate was 4.2% decreasing from 4.6% in 1997. Do these statistics assume that the recent graduates of high school are smarter than the last? Or perhaps high school students are smarter because they are reading more. With over 16,000 public libraries and branches in the U.S. totaling up to over 300 libraries per state, the probability of your hometown having a library is pretty good. So the question arises, do libraries have an impact on the reduction of high school dropouts?

Pair Creation Process in Supercritical Fields*

Kevin Cooley
Piotr Krekora, Q. Su, Rainer Grobe

Physics

We investigate the pair-production process in vacuum induced by a supercritical field using space-time resolved solutions to relativistic quantum field theory [1, 2]. In the transition from the early time regime that is determined by the temporal turn-on of the field to the steady state regime characterized by a linear growth of the pair production probability in time, we compare numerical data obtained from the temporally and spatially resolved quantum field theory with analytical estimates [3]. We test the range of validity of the Schwinger formula for supercritical fields with a finite spatial extension and strength. In the long-time regime, we analyze the electron-positron creation process from vacuum in which multiple pairs are produced [4]. We find that for a supercritical potential of finite extension, the time-dependence of the production rate of pairs is described by four distinct regimes that have their direct counterparts in the time evolved spatial density of the particles. These regimes include the shape-invariant birth process, an entanglement-induced reduction of interference, a recurrent Pauli-suppression of pair-production induced by electron-potential scattering and finally a production halt associated with a population of supercritical, a partial population of subcritical bound states and a permanent positron density close to the boundary of the potential.

* Supported by grants of the NSF, Research Corporation, Illinois State URG and Honors Program.

[1]P. Krekora, Q. Su and R. Grobe, Phys. Rev. Lett. 92, 040406 (2004).

[2]P. Krekora, Q. Su and R. Grobe, Phys. Rev. Lett. 93, 043004 (2004).

[3]P. Krekora, K. Cooley, Q. Su and R. Grobe, Phys. Rev. Lett. (submitted).

[4]P. Krekora, K. Cooley, Q. Su and R. Grobe, Las. Phys. (in press).

An Analysis of the Effectiveness of the Studio 2B Program

Anna Cosner
Jennifer Parker

Communication

In 2002 the Girl Scouts of America launched its Studio 2b campaign for girls ages 11-17. Studio 2b focuses on programs that teach self-defense, intercultural exploration, and career education. Because the Girl Scouts is an organization that seeks to define a girl's place within society, and because the Studio 2b program is seeking to radically redefine what that place is; it is necessary to ask how the Studio 2b program can change conceptions of girlhood within our society. In Patricia Darlington and Becky Michelle Mulvaney's article, "Gender, Rhetoric, and Power: Toward a model of reciprocal empowerment" they explain that reciprocal empowerment is a degendered form of rhetorical discourse that allows individuals to attain power while still gaining respect and cooperation from others. This article provides an excellent vehicle for analysis because the Studio 2b program focuses on teaching girls how to become strong, self-reliant members of a broader community. Therefore, to understand the effectiveness of the Girl Scouts' Studio 2b program one must first examine the tenets for creating reciprocal empowerment, next apply the tenets to the Girl Scouts Studio 2b program, and finally draw critical conclusions as to the effectiveness of the program in changing the idea of girlhood.

Effects of Temperature and Substrate Concentration on the Activity of Coproporphyrinogen Oxidase

Martin Crimmens
Marjorie Jones

Chemistry

Coproporphyrinogen Oxidase is one of the enzymes in the heme biosynthetic pathway and defects in this enzyme lead to anemia and porphyria, both important health problems for humans. Thus, understanding how this enzyme works is an important goal of the Jones' research group. The objective of my research using the enzyme Coproporphyrinogen Oxidase is to evaluate the activation energy (E_a) for the two sequential oxidative decarboxylation steps involved in the enzyme activity. Comparison of these E_a values would allow us to determine the relative difficulty of these steps. A graph of substrate concentration versus initial velocity (V_o) will give an estimate of the maximum velocity (V_{max}). With this information, the rate constant k_2 can be established. An Arrhenius plot of these data, as a function of temperature, will allow an estimate of the E_a . The larger the E_a term, the more difficult that step in the reaction should be. Enzyme assays using two different substrates will allow both steps of the reaction to be assessed. Various concentrations of harderoporphyrin, incubated with the enzyme at different temperatures, will be carried out to obtain an estimate of the activation energy of the second oxidative decarboxylation. Another substrate, Mesoporphyrinogen-VI (a substrate that will only undergo the first oxidative decarboxylation) will also be assessed. These two substrates will help evaluate the activation energies for both catalytic steps of this enzyme. This experimental approach may be fruitful in helping understand E_a for the two separate oxidative decarboxylations.

Baseball in the Dirt: Archaeology and the Origins of the National Pastime

Matthew Cross
Charles Orser, James Skibo

Sociology and Anthropology

Can archaeology unearth the origins of baseball? An analysis of its material culture is a step in answering that question, because previous histories of the game have relied solely upon the written record. Historical archaeology, however, utilizes material culture, in addition to documents, in efforts to reconstruct the past. Baseball evolved into the Pan-American pastime from localized modifications and combinations of rounders and cricket, both English games, in cities of the Northeastern United States. Until the later half of the 19th century, baseball was a game primarily played by children and laborers from the lower classes, which have been largely ignored in historical documents. A 1905 study by Albert Goodwill Spalding placed baseball's founding in 1839 in Cooperstown, New York, by the Civil War hero Abner Doubleday. However, that has been disproven on numerous occasions, and is now regarded as pure fiction. In fact, a few documents have placed the game back into the eighteenth century. In May 2004, a document was discovered in Pittsfield, Massachusetts dating 1791, banning baseball from being played within 80 yards of a new meetinghouse, because of feared damage to the building's windows. This document places baseball in existence at least 48 years before its origin myth claims. I contend that historical archaeology can be used more effectively than the discipline of history alone in search of baseball's true origin. In order to prove this, I have investigated the material culture of early baseball to determine what remains in the archaeological record and where locations of possible excavations would be most productive. I also examined the material culture of other games that preceded baseball, in order to understand the progression of the material culture to the modern form of baseball.

In-Course Honors: Fulfilling Requirements or Challenging Inquisitive Minds?

Courtney Custis
Tim Fredstrom, Sara Schikel

Music

The purpose of this study is to understand the perspectives of students who have had in-course honors experiences in music courses and articulate what would make their experiences meaningful and valuable. The School of Music does not offer honors sections in most of its courses, thus many music honors students do in-course honors projects in order to fulfill their requirements with the Honors Program. Understanding student perspectives will provide useful information for faculty across the university as they work toward improving the effectiveness of the experience and instruction of honors students.

Tape-recorded interviews are being conducted with students who have participated in in-course honors experiences. Participants will be asked to describe their experiences and propose a curricular structure that would better fulfill the intent of their participation. The interviews will be transcribed and analyzed using grounded theory research procedures. A theory describing the perspectives of the participants will be developed, from which instructional implications and changes to the in-course honors curriculum will be proposed. These findings will be developed into a research article to be published in journals of higher education

Mental Illness Stigma and Perceptions of Dangerousness

Talia Dart
Glenn Reeder

Psychology

The objective of our study was to identify reactions to people with mental illness. One hundred sixty participants were first asked to take a pretest that measured a variety of things including tendencies to rely on intuition, tendencies to experience disgust, and stereotypes about violence among persons with severe mental illness. We then tested the same participants at a later date. The second part of our study had the participants watch a movie of a target person who had either a dental or psychiatric appointment. It then showed the same man engaging in an ambiguously aggressive way (e.g., he was shown at a party playing a game that involved slapping another person's hands). The participants were then asked questions about the target person behavior in the movie. Participants were randomly assigned to three different independent variables; the dental or mental condition, 5 second or 20 second timing for answering the questions, and either the reverse or regular order of how the questions were asked. We predict that we will see correlations between the pretest measures and ratings of danger concerning the target person shown in the movie portion of the experiment.

This I Call My Home: A Look at Slave Quarters on Southern Plantations

Alice Davin
Jim Skibo, Charles Orser

Sociology and Anthropology

It is believed by many archaeologists and historians that African slaves built their houses to resemble their traditional homes in Africa. In this paper I explore the changes that occurred with the material culture of slaves from the beginning of their arrival in the New World until the Civil War. I specifically looked at the structure of slave quarters and artifacts that were found in them, such as pottery, bottles, and religious items. My analysis focuses on the slave houses and artifacts from the Kingsmill Plantation (1619-1800), Cannon's Point Plantation (1794-1860), and the Oakley Plantation (1840-1950). I explore how the early African culture influenced the design of the slave houses and material culture and why African influence disappeared in later southern plantations.

Anisotropy of Magnetic Susceptibility (AMS) Analysis of Mafic Dikes at Cathedral Cliffs, Wyoming: A Test of the Continuous Allochthon Model for Heart Mountain Faulting

Joshua DeFrates
David Malone, John Craddock

Geography-Geology

Mafic dikes pervade the upper plate of the Heart Mountain Detachment, yet the dike concentration in the lower plate is sparse. The dikes in the upper plate have been interpreted to be either syntectonic and an intimate part of the gradual extension of the upper plate ("continuous allochthon" model) or older than and unrelated to faulting. The magnetic fabrics of 32 mafic dikes at Cathedral Cliffs were analyzed using low-field anisotropy of magnetic susceptibility (AMS) as a proxy for flow. These dikes intrude Ordovician-Mississippian carbonates and overlying Eocene volcanic rocks and are truncated below along the nearly horizontal Heart Mountain detachment. The dikes trend between N10W and N20E, are all steeply dipping, and range in width between 0.5 to 3 m. Hysteresis loop data show that multi-domain magnetite grains control the AMS fabric in the dikes with a few samples falling into the pseudo-single domain range. Mean susceptibilities for the dikes range from 1.972×10^{-2} to 4.727×10^{-2} with an overall mean of 3.201×10^{-2} . Flow directions for the dikes were determined by the bearing and plunge of the K_{max} axes. About 66% of the dikes sampled show typical dike AMS patterns with K_{max} and K_{int} in the plane of the dike and K_{min} normal to the dike plane. About 72% of the dikes sampled have K_{max} inclinations $>40^\circ$ and thus were emplaced upward; 22% of the dikes have K_{max} inclinations of $<10^\circ$ and thus were emplaced laterally. The remaining dikes have intermediate K_{max} inclinations. With numerous dikes showing vertical to subvertical emplacement directions and with no source below the detachment nearby indicates the dikes predate emplacement of the upper plate. Therefore, dike intrusion cannot contribute extension as suggested by the continuous allochthon model.

Basin Morphometric Study of the Little Kickapoo Creek Drainage Basin, Southeast of Bloomington, Illinois

Joshua DeFrates
Robert Nelson

Geography-Geology

A basin morphometric study was conducted on the Little Kickapoo Creek drainage basin to determine the hydrologic attributes and morphometric relationships of the watershed upstream from the ISU well field. Measurements were made on a digital elevation model and a digital topographic map using Canvas and Global Mapper software. Streams were delineated by hand based on the topographic profile and ordered using the Strahler (1952) method. Stream segment lengths were measured individually using Global Mapper software and stream relief was estimated based on the topographic map. The basin encloses an area of 22.31 square miles, has a perimeter of 21.9 miles, and contains 206 miles of streams. Following the stream ordering method developed by Strahler (1952), this basin was determined to be a fifth order basin. There are 813 first order streams in the basin with a total length of 120 miles, a mean length 776 feet, and a mean slope of 2.4%. A total of 172 second order streams were delineated having a total length of 44.7 miles, a mean length of 1,372 feet, and a mean slope of 1.7%. Thirty-five third order streams occur in the study area and have a total length of 22.7 miles, with a mean length of 3,341 feet and a mean slope of 1.5%. There are seven fourth ordered streams in the basin with a total length of 9.2 miles, with a mean length of 6,932 feet and a mean slope of 0.5%. The fifth ordered stream in the basin has a length of 10.1 miles and a mean slope of 0.1%. The bifurcation ratios ($R_{b:i+1}$) for the basin are 4.72, 4.91, 5, 7 for R_{b12} , R_{b23} , R_{b34} , and R_{b45} , respectively. Drainage density for the Little Kickapoo Creek drainage basin is 9.25 miles/square miles.

A Comparison of Lower Extremity Kinematics at Ground Contact During One and Two Leg Drop Landings

Julie Degenhart
Steven McCaw

Kinesiology and Recreation

Vertical ground reaction force (GRFv) descriptors of landing on one leg are less than twice the two leg landing values. When landing, a person modifies leg stiffness to allow for energy absorption while preventing leg collapse. Prior to ground contact, the individual must align lower extremity segments to adopt a position that allows each joint to contribute to energy absorption. The purpose of this study is to compare lower extremity kinematics at contact between landings onto one and two legs. Sixteen physically active females, each accustomed to landing, participated in the study. All landings were performed from a 0.3m tall box. Ten trial blocks of one leg and two leg landings were collected in random order from each subject. Instructions were to land "comfortably." Reflection markers secured on the right side of the body defining the trunk, thigh, shank and foot segments were digitized with a high-speed video system (120Hz). Software was used to calculate joint kinematics including angular position and angular velocity at contact. Paired t-tests were used for statistical comparisons ($\alpha = 0.05$) between the one and two leg landings.

The Relationship Between Academic Performance and Organizational Behavior of Illinois State University Students

Ashley Delach, Lisa Wittleder, Chrissie Honer, Sarah Kathro, Alissa Deceault
Jean Memken

Family and Consumer Sciences

The purpose of this research is to examine the relationship between organizational behavior while at home and students' academic performance. Specifically, it was hypothesized that students who are unorganized will perform poorly academically, compared to students who are organized. A convenience sample of 350 Illinois State University students was surveyed. Students were asked to identify their gender and answer a series of questions related to their organizational skills and current grade point average. Chi-square analysis was used to test the hypothesis. This research has major implications to college bound students, current Illinois State University students, and interior designers.

Spatial Perception Increases with Experience: Displacement May Not Indicate Error

Adam Doerrfeld
Scott Jordan

Psychology

Past research shows that the perceived vanishing point of a moving stimulus is beyond its actual vanishing point. This displacement is thought to be an error. If this is correct, then experience controlling the movements of the stimulus should reduce error and decrease displacement. One hundred and sixty women and 95 men, ranging in age from 18-35, participated in this study. In phase 1 of this study, one participant (the controller) controlled a dots horizontal movement across a computer screen via left and right key presses; upon the dots unexpected disappearance, a second participant (the observer) indicated the dots perceived vanishing point. In phase 2, participants switched roles to determine if experience with the task had an effect on displacement. Contrary to what is implied by past research, experience with the task actually increased displacement. This is thought to be due to participants building of anticipatory models, making more experience lead to better prediction of distal events. Further variations of this experiment revealed that actually controlling the dot is not necessary to produce larger displacement. Simply having access to this information (i.e. through observational learners seeing and hearing the key presses correspond to the motion of the dot) is enough to build an internal model. The current data suggest that greater displacement does not indicate error, but a learned pattern of anticipation.

Synthesis and Application of the 3,4,5,6-Tetrahydro-2H-1,3,4-Oxadiazinone

Alexandro Dominguez
Shawn Hitchcock

Chemistry

Chiral substrates are important for developing safe pharmaceutical drugs and safe natural occurring products. Our research group is exploring the boundaries and limitations of a very versatile family of chiral auxiliaries known as oxadiazinones. Oxadiazinones (1) represent a class of compounds that have recently emerged as viable candidates for application as chiral auxiliaries, most notably in the asymmetric aldol reaction. Our research group has been focused on exploring the potential of these compounds in asymmetric applications. We became interested in exploring the potential for these compounds as chiral templates for the diastereoselective halo aldol reaction. Specifically, in this trial, bromoimides of oxadiazinones were employed in the asymmetric aldol reaction. This process was successful in terms of the reaction diastereoselectivity. The focus of this present study is to determine the absolute configuration of the asymmetric aldol product.

Theme and Motivation: A Study of the Choreographic Process

Amanda Donnan
Sara Semonis

Theatre

This project analyzes the process of developing an abstract modern dance duet using various choreographic devices, chiefly motif and development. Through this study I aimed to create a piece with a clear intention and theme as well as a consistent style and movement vocabulary. In addition, I wanted to portray the relationship between my two dancers in an effective and clear manner. I worked to achieve these goals by rehearsing with my dancers, allowing for the natural progression of the piece, and, most importantly, receiving feedback from my cast, faculty, and peers. I used this feedback to clarify and reevaluate my choreographic choices so that they would be more effective in communicating my intention to an audience. As I rehearsed with my dancers I developed several key movement phrases by varying size, levels, focus, direction, and order. Through this manipulation of material, I was able to recognize a 'found' intention expounding from the movement. I took this motivation and built upon it to give the piece a direction and purpose. The relationship between my dancers was furthered through this discovery as well. When I began the choreographic process I was unsure of how these dancers associated with each other and how this connection would change in the work. The motivation I developed through trial and error in the rehearsal process clarified their relationship for me, in terms of choreography, for my dancers, in terms of performance, and for audience members, in terms of interpretation. While I decided not to specify the exact labels and titles of the relationship, the terms of their duet and partnership are clear in the choreography. As in the case with any creative work, my final product has evolved from where I originally imagined it going. I found this process to be particularly challenging for me because its experimental nature pushed me to create something new and outside of my range of experience. However, this is more encouraging than disappointing because through the process of shaping the piece I was able to grow as a dance maker, learn more about the craft of choreography, and, ultimately, generate a more successful, meaningful, and organic dance.

Cognitive Behavior Therapy: The Power of Positive Thinking

Joseph Dooley
Jennifer Parker

Communication

As an awkward teenager growing up in New York in the 1930's Albert Ellis had a major phobia: he was scared of talking to girls. One day he got scientifically fed up and went to the Bronx Botanical Garden where he forced himself to have a one minute conversation with a cute girl. After a month of this "research," and 100 enjoyable conversations later, Albert Ellis scored a date with an attractive girl. Unfortunately, she never showed up. But this did not get the doc down. Instead, he viewed his endeavor as positive since he had had 100 enjoyable conversations, and according to the National Public Radio of June 2, 2004, Dr. Ellis' personal experiment led directly to the creation of Cognitive Behavior Therapy, a type of psychological research that has only recently become popular and has diverged from Freudian psychoanalysis. Cognitive Behavior Therapy helps instill rational and positive attitudes in our daily lives. Cognitive Behavior Therapy also is changing the way that scientists are viewing anxiety and depression. Psychologists are now seeing depression and anxiety as opportunities to enhance the overall cognitive abilities of patients, and not as a way to victimize patients who have it. Thus, today I will discuss the implications behind Cognitive Behavior Therapy, as analyze its applications and drawing some critical implications.

Analyzing the Empowerment Granted by Labor Plus Materials

Jamie Downing
Jennifer Parker

Communication

A new Iraqi television show, Labor Plus Materials, follows a host and a crew of workers as they rebuild and restore the homes of Iraqis nearly destroyed by the US invasion of Iraq. Reality television has a tremendous impact on American television viewing habits because it uniquely shapes the way certain cultural contexts are perceived. Particularly in the case of Iraq, Americans rely solely on mediated images to shape their view of the plight of the Iraqis. An evaluation of this program shows Americans how Iraqis are able to help themselves and may lead to an understanding of how one culture can help to rebuild another completely different than its own. In his article, "Reality TV, Big Brother, and Foucault," James Wong explains the relationship between the surveillance methods used in reality programming and the agency of participants. This article proves to be perfect for analysis because Labor Plus Materials focuses on using the power of surveillance to help restore agency to the Iraqi people. In order to understand how a reality program can be empowering to the participants and viewers who experience, one must first examine Wong's tenets exploring the relationship between producers and participants, apply them to the Iraqi program, Labor Plus Materials, and finally draw some critical conclusions as to how this program can be used to empower individuals.

The Dietary Habits of On-Campus Versus Off-Campus Residing Illinois State University Students

Katherine Dyer, Carrie Baker, Jenny Tong
Jean Memken

Family and Consumer Sciences

The purpose of this research was to examine the dietary habits of college students living in on-campus versus off-campus housing. It was hypothesized that the dietary habits of students living off-campus meet more nutrient requirements compared to the dietary habits of students who live on-campus. A convenience sample of 350 Illinois State University students was taken. Data was collected and recorded by way of a survey related to dietary habits and place of residence. Each student was asked to complete the survey based on his or her personal dietary behaviors and where he or she lived, either on-campus or off-campus. Chi-square was used to test the hypothesis. This research has major implications for those in the field of nutrition and dietetics, as well as the general public.

Women and Menopause: How Different Cultures Vary

Aimee Edmondson
Jim Stanlaw, Lori Fitton

Sociology and Anthropology

In this presentation I will argue that menopause has been looked at as a biological adaptation for women, however have these "adaptations" expanded culturally on how women experience menopause effects. It has been claimed (Baba 2001) in research from the Study of Women's Health across the Nation that women from Western societies view menopause negatively. However, in Eastern societies women either have nonchalant attitudes or view menopause as a celebration (Berger and Wenzel, 1999). I will show that the way women view menopause and their symptoms vary from culture to culture. I support this claim ethnographically by using data from research studies, scholarly journals, and various interviews. This presentation offers a cross-cultural perspective of how menopause is

Synthesis of tetraphenylazuliporphyrins from 6-tert-butyl and 6-phenylazulene

Jessica El-Beck

Chemistry

Timothy Lash

Porphyrins analogues with carbocyclic rings in places of one or more of the usual pyrrole units are attracting considerable interest due to their unusual spectroscopic and chemical properties. Azuliporphyrins are carbaporphyrinoid systems incorporating an azulene subunit. These macrocycles are poorly soluble in organic solvents but show interesting chemistry, including the ability to form nucleophilic adducts. This property is believed to be responsible for the oxidative rearrangement of azuliporphyrins under alkaline conditions to afford benzocarbaporphyrins. In order to improve the solubility characteristics of these compounds and to modify the reactivity at the seven-membered rings, azuliporphyrins have been synthesized from 6-tert-butyl and 6-phenylazulene. The substituted azulene, pyrrole and benzaldehyde are reacted in the presence of BF₃ to give the meso-substituted azuliporphyrins. Preliminary results indicate that these substituents do not prevent oxidative rearrangements from occurring.

Revalidation of CEC Deaf Education Standards

Kristin Eminger

Special Education

Sharon Litchfield

My presentation is an ongoing research project that correlates with the Council for Exceptional Children re-validation process for the deaf and hard of hearing sequence. I am working with a deaf education faculty member on campus as part of an independent honors study. Through this study, I am working to re-validate the standards within deaf education by providing professional source citations and information about the use and importance of each of the standards. I am in contact with a group of professionals and deaf educators who send feedback about their opinions regarding the purpose and necessity of the standards and together we are trying to re-write and re-organize the already existing CEC standards. I am working with both knowledge and skill based standards and reviewing a variety of sources to create abstracts defending the importance of each standard. I have created data collection outlines to track the information that I receive and organize it in an understandable manner. I have also conducted research studies within the project using model programs from universities featuring deaf education programs to valid skill standards. This is a research study that is still in the process of being completed and will be submitted for publishing within the next five years. I started working on this project last semester when the revalidation process began and I planned to continue with the study until my graduation a year from now. Hopefully, this project will help deaf educators in the future to be more prepared for the issues they will be encountering and will create more logical and effective standards for the teachers currently in the field.

Influences on Fashion Choice: A Study of What Drives the Fashion Choices Made in American Culture

Charlotte Erickson

Communication

John Baldwin

This study identified reasons for and influences on the fashion choices made by people in American culture. Participants in this study filled out an open-ended questionnaire, which was comprised of four questions regarding the participants' personal fashion choices. Responses to this questionnaire were divided into four main themes – Pragmatic, Righteous, Social, and Commitment/Loyalty – and 16 sub-categories. The themes and sub-categories of these themes provided the answers to the research question that guided this study. The responses gave insight as to how people make their fashion choices, why people make their fashion choices, and what influences people believe help them to make their fashion choices. The research also looked specifically at the media as an influence on fashion choices. This research is a new and innovative way of studying fashion, as it seeks to discover what drives people's fashion choices, rather than simply looking at the meaning of fashion in various cultures, as previous research has done.

Social Validation of an Ongoing Clinical Music-Language Program

Elizabeth Erwin

Speech Pathology and Audiology

Marcia Dennis, Ann Beck

In August of 2004, a community service project was initiated in a local Sheltered Workshop for Adults with developmental disabilities. Initially an undergraduate student majoring in Speech-Language Pathology and a clinical supervisor from the Department of Speech Language Pathology and Audiology observed the activities at the site and decided to start a program that would use music as a medium to facilitate communication and social interactions. During the Fall 2004 music sessions, the ten adult participants listened, danced, sang, and played musical instruments to different genres of music from around the world. After listening to each song, the leaders would incorporate clinical speech-language pathology interventions to facilitate communication by asking the participants questions about the music and the emotions it elicited. At the end of the Fall 2004 sessions, the participants gave a presentation of their favorite genres to other individuals and staff members at the facility. During this presentation, simple electronic communication devices were used by the participants who are non-speaking.

Starting in early Spring 2005, the sessions grew from ten to approximately fifteen participants, and a facility staff member began observing the sessions. Additionally, two ISU graduate students majoring in Speech-Language Pathology and a second supervisor also began coming. This spring, more clinical speech-language pathology interventions, such as communication boards and electronic communication devices, have been incorporated into the program.

The research for this project will involve interviewing the staff at the facility to determine their perception of the effectiveness of the program and their suggested changes to the program. These interviews will take place after the completion of the program for the Spring 2005 semester.

Map of Glacial Landforms of Kennicott-McCarthy, Alaska

Jamie Esler

Geography-Geology

Stephen Van der Hoven, William Shields

My 2004 summer independent study goals while living in the town of McCarthy, Alaska included the creation of a map of the glacial landforms that surround and make-up the Kennicott-McCarthy, Alaska landscape. Two 7.5-minute quadrangle maps of the area were used in order for me to outline the geologic boundaries between these landforms. Mapping was conducted by observations made while in the field; observations and measurements were recorded on topographic maps and in a field notebook. Geologic descriptions were made of the materials underlying each landform that I mapped, and included observations, definitions and measurements pertaining to grain sizes, and sedimentary processes of sorting and rounding rock fragments. Upon returning back to Illinois State, I created a computer-generated map of my observed and measured boundaries between the glacial landforms. By using Canvas 9.0, Global Mapper, Adobe Photoshop, and Microsoft PowerPoint, I was able to create a map containing colored boundaries, a legend, along with descriptions and photos that I took of each of these landforms to compare to the 3-D images that the computer programs had generated.

Geologic techniques involved in collecting data while in Alaska included observing and measuring rock fragments and particle sizes of stratified drift and sedimentary deposits at various distances from the terminal moraine throughout the outwash plains of the Kennicott Glacier, while also observing and measuring the magnitude of sedimentary rounding and sorting of rock fragments along the medial, lateral, and terminal moraines of the Root, Gates, and Kennicott Glaciers. Communication between Dr. Van der Hoven and myself was most widely dependent on e-mail, in which I would update him on my progress whenever possible.

Being able to walk around the area I lived in and literally watch my textbooks come alive and witness these forces of nature in action was one of the most humbling and fascinating experiences I have ever lived through. This independent study has allowed me to get a much clearer idea of what the world of geology is all about, and that it isn't just pictures, diagrams, or tables within a textbook. Rather that it is truly the entire physical world around us as well. Holistically, I have gained a better perspective of what my future career in the field of geology will entail.

Frontier Cultures and The National Park Service: An Ethnographic Case Study of Rural Alaskan Frontier Politics in the

Jason Esler

Sociology and Anthropology

James Stanlaw

This paper will take a critically applied approach in analyzing a variety of historical and professional practices that are currently preventing a positive relationship from developing between the federal administration of The National Park Service and the rural frontier communities that continue to thrive on our natural resources. I will argue that static visions of the environmentalist movement towards conservation are impacting the National Park Service's ability to both uphold the ideals of the frontier cultures and the American public. My ethnographic experience in a rural community shows that the original goals of wilderness conservation in America are fundamentally flawed when applied to rural communities and subsistence resource management policies in the twenty-first century, specifically within Alaska. By looking at both the literature and practices of NPS employees, I will argue that the original ideals of community cooperation in Alaska's National Parks are floundering due to three main reasons; (1) personal agendas within the NPS in Wrangell St. Elias National Park (WSENP), (2) the "linguistic flaws of misrepresentation" that exist within ANILCA, and (3) the lack of cultural relativity within current subsistence resource management policies and behavior. I will also argue that in order for the environmentalist movement and the NPS to uphold their goals of preservation and conservation, they must take into account and respect the desires and needs of the human culture that will inevitably structure the social attitude of the environment which they also wish to protect.

An Analysis of the Rhetoric of Win the Green

Rafael Esparza

Communication

Jennifer Parker

In the new Spanish program entitled, Gana la Verde (Win the Green), unnaturalized citizens are given the opportunity to win permanent residency in the U.S. by competing in a series of Fear Factor-like events which are based upon the perceptions of the immigrant experience (such as pushing trucks up hills, washing windows on tall buildings, and performing maid service). The popular television series currently attracts more than one million viewers on a daily basis in its four test markets of Los Angeles, San Diego, Houston, and Dallas, but has also been criticized by the American Immigration Lawyers Association and representatives for Immigration and Customs Enforcements for its negative portrayal of undocumented immigrants. In his article entitled "Betrayal and fear: Press coverage of Canadian Skinheads," Murray Foreman provides a framework for us to compare the experiences of the contestants on Win the Green to Canadian Skinheads, as he argues that "when a culture is displayed on television, or becomes mediated, those who edit the images will exploit and pronounce the differences between the mainstream and mediated culture." Foreman further uses the example of Canadian Skinheads to show the more a culture attempts to draw attention to their outcast status, the more the media will increasingly use its power to visually exploit their spectacularity for the purpose of ratings, viewers, or readers. The images in the television series Win the Green are so potent because most of the populace has little experience with undocumented immigrants, as they constitute a hidden culture, making it necessary to ask the question: How does Win the Green socially construct the perception of undocumented immigrants via mediated power structures? In order to answer this question we'll discuss the tenets outlined by Foreman's article for mediated power structures, apply them to the television series Win the Green, and finally draw some critical implications of this new television series.

Specific Activity of Phosphocholine Cytidylyltransferase for Drosophila Melangaster in the Presence of Divalent Cations

Chadrick Evans

Chemistry

Jon Friesen

Phosphocholine cytidylyltransferase (CCT) is present in the metabolic pathway that results in phosphatidylcholine, a major lipid in cell membranes. CCT catalyzes the synthesis of CDP-choline, and it is this pathway that results in the biosynthesis of phosphatidylcholine. CCT is the second enzyme of the CDP-choline pathway and is the rate-limiting step in the synthesis of phosphatidylcholine. CCT is lipid activated and is present in soluble and membrane bound forms (citation).

My research focused on a form of CCT from Drosophila melanogaster. Two isoforms exist, Dros 1 CCT (two isoforms exist, short and long) and Dros 2 CCT, with my research being based on the former of the two. I studied the activity of Dros 1 CCTs (short form) in the presence of several divalent cations through a series of assays.

Memory and Art

Adam Farcus

Art

Micheal Wille, Claire Lieberman

“Desire makes everything blossom.”

~Marcel Proust, from Les Plaisirs et les Jour

Desire, or want, is the driving force behind my artwork. This want is manifested in my desire for an object, for a person, a destination or a memory. I become obsessed with these wants, and they are found in my work. Memory, a main theme in most of my pieces, is an important issue for me. I have a poor memory and I use my work to help express my feelings of desire to remember, or to not forget. These assemblages, collages and paintings are a way for me to record events, feelings and ideas. I use found objects (cultural flotsam) because I feel that they have an inherent history, or past, because of the people who had them, and their life; and because of the object's life. I use these discarded objects to illustrate my feeling toward a past forgotten. These pieces are mostly based on my personal experiences. The images and symbols I use combine to create a desire I have. The meaning is intentionally ambiguous because I want the viewer to experience each piece with their own associations and draw a conclusion based on their past.

Surficial Geologic Map of the Prairie Center 7.5' Quadrangle, LaSalle County, Illinois

Julia Ferguson

Geography-Geology

Elizabeth King, David Malone, Lauren Lowell, Ebenie Adenyie

The Prairie Center 7.5' Quadrangle is located in LaSalle County, Illinois. It covers the area between 88°52'30" and 89°00'00" west longitude and 41°22'30" and 41°30'00" north latitude. A surficial geologic map of the Prairie Center Quadrangle was constructed using soil maps from the Soil Survey of LaSalle County, published by the University of Illinois Agricultural Experiment Station. The soils and their descriptions, designated by numbers on the soil maps, were interpreted and sorted into formations present in Illinois. The soils were sorted into eight formations that were then named based on their relationship to Illinois formations: the Cahokia formation (QHc), Equality formation (Qe), Henry formation (Qh), Peoria silt (Qps), Lacon formation (Qla), Yorkville member of the Lemont formation (Qly), Batestown member of the Lemont formation (Qlb), and Bedrock. Of these eight types, four are present in the Prairie Center Quadrangle. The Peoria silt, which covers a large portion of the quadrangle, is composed of Wisconsin episode loess reported to be greater than 5 feet in depth. The formation is generally yellow-tan to gray clayey silt and does not contain many significantly weathered areas. The Yorkville member of the Lemont formation also covers a large section of this map. It is composed of 35 different soil types that fall into the category of Wisconsin Episode till. The member consists of dark gray silty clay or silty clay loam diamicton and oxidizes to an olive brown color. The third formation found in Prairie Center are small areas of the Equality formation, most often associated with the areas of the Peoria silt but in some cases are isolated within the Yorkville member of the Lemont formation. The Equality was distinguished from the other soils as lake sediments and bedded silts and clays. A small area of the Henry formation is present in the northeast section of the Prairie Center quadrangle. The Henry Formation intertongues with the Equality Formation throughout Illinois. It is composed mainly of stratified sand and gravel, and the soils within the Henry formation group are typical of Wisconsin Episode channel deposits. This project is part of the long-term goal of the Geology Department at Illinois State University to map all of LaSalle County using the Soil Survey method. It is being funded by the USGS, ISGS, and NICOR Inc.

Assertiveness Levels and Generations

Elizabeth Foste

Communication

Mark Comadena

This purpose of this study was to test for a difference in assertiveness levels between older (those born before 1933) and younger (those born between 1982 and 1999) generations of our society. Surveys were distributed to local university students and nursing home residents. Data reported herein indicates that the youth of today are indeed more assertive than the elderly. The implications of these results are discussed in the conclusion of this paper.

On Gamma-Labelings of Some Infinite Families of Almost-Bipartite Graphs I

Bonnie Frank, Lauren Barracca, Brittany Fitzgerald, Rachel Kuna, Peter Lamonica,
Jennifer Love, Andrew Thurman
Saad El-Zanati

Mathematics

In 1965, Alex Rosa introduced several types of graph labelings as means of attacking the problem of finding cyclic graph decompositions of complete graphs. Rosa showed that if a graph G with n edges admitted certain kinds of labelings (rho-, sigma- or beta-), then G cyclically decomposes the complete graph on $2n+1$ vertices. Moreover, if G is bipartite and if it admits a restrictive labelling, called an alpha-labeling, then G cyclically decomposes the complete graph on $2nx+1$ vertices for every positive integer x (thus G divides an infinite family of complete graphs, rather than just one). A new labeling that yields the same decomposition outcome as alpha-labelings was recently introduced for graphs that are not necessarily bipartite. Blinco, El-Zanati and Vanden Eynden showed that if an almost-bipartite graph G with n edges admitted what they call a gamma-labeling, then G cyclically decomposes the complete graph on $2nx+1$ vertices for every positive integer x . A non-bipartite G graph is almost-bipartite if it contains an edge whose removal makes G bipartite. As part of our project in MAT 289.23, our class is searching for infinite families of almost bipartite graphs that admit gamma-labelings.

Geographic Analysis of Membership Attendance

Logan Frederick
Francis Waterstraat, Dagmar Budikova

Health Sciences

This study was done to determine where the Illinois Health Information Management Association (ILHIMA) members who attend annual meetings reside; for meetings held in the greater Chicago area as opposed to "downstate" meetings. Attendance for the annual state meetings has been declining over the past several years. The ILHIMA board of directors has promoted Chicago area meetings, because attendance is higher. A concern has been expressed by the membership that Chicago area meetings are not easily accessible to the downstate members; therefore downstate meetings are necessary to support all of the state association members. The goal of this research is to determine if downstate ILHIMA members attended downstate meetings at greater frequency than Chicago area meeting. De-identified zip code data from the 2003 and 2004 ILHIMA state meeting registration lists and ILHIMA membership list were transferred into Microsoft Access and queried. The resulting data were transferred into the ArcGIS cartography software. The ArcGIS software used the zip codes to draw maps identifying the residence location and densities of the meeting attendees from around Illinois. Illinois was divided into three main geographic areas consistent with ILHIMA's regional component association boundaries: Above I-80 (Northern Illinois), between I-80 and I-72 (Central Illinois), and below I-72 (Southern Illinois). The resulting residency maps revealed that well attended 2003 Chicago area meeting had a majority of the attendees from the Northern Illinois Region. The 2004 Peoria area meeting (downstate) drew fewer members, but more members from the Central and Southern areas of Illinois attended. The findings of this study support the assumption that downstate members do not attend or do not have access to Chicago area meetings. When the meeting was held in a mid-state location, the attendance of members from the Central and Southern areas of the state increased significantly. In fact some members from the extreme southern tip of Illinois attended. These findings suggest that members from the Central and Southern areas of the state do not attend state meetings when they are held in Chicago area. But Central and Southern members attended state meetings when they are held in central or southern locations. Although a greater number of members reside in the Chicago area, in order to meet its educational responsibility to all state members, ILHIMA needs to hold more state meetings in the central and southern areas of the state to insure it provides education opportunities for all its members.

How the Morphology of a Primate Affects its Intelligence Level

Kevin Freeman
Martin Nickels, Jim Skibo

Sociology and Anthropology

Can the body structure of an organism cause a selective pressure for an enlarged brain? If this process has happened can evolutionary changes in an organism's body structure open the door for other changes that are not exactly adaptive? It is well known that primates are among some of the most intelligent animals on earth. What this paper will explain is why that is. Primates have an advantageous body structure for technology use. Primates have had various physical changes in their body structure during their adaptation to an arboreal environment. The evolutionarily constructed morphology that has resulted is one that is perfectly suited for technology use and manipulation of everything that surrounds it. My paper will discuss the relationship between morphology and intellect. It will also theorize as to why so few primates utilize technology and why humans are totally dependant on it. In this paper I will utilize my first hand experience as an exhibits constructor at the Brookfield Zoo, and my constant contact with the primates that are on display there. I will go into detail about the various physical structures that we constructed to help entertain and stimulate the minds of these more intelligent of animals. My analysis will help shed light on the intellect of our evolutionary cousins, and bring about a better understanding of the relationship between body structure and intellect.

The Suburbs

Marissa Gaines
Jennifer Parker

Communication

A white picket fence. Children playing a soccer game. Moms out talking to neighbors. These are all stereotypical images that come to mind, when the word suburb is said. It turns out though, that the suburbs are not as picture perfect, as they once seemed. The preconceived notion that living in the suburbs, offers the best lifestyle simply no longer holds to be true. According to CBS News, on May 1st 2004, people who live in the suburbs are more like to experience health risks, both mentally and physically, than people who live in rural or urban areas. We need to reevaluate the suburbs on an ideological and pragmatic level. This can be looked at by first looking at the enthusiasm that surrounds living in the suburbs, next the effects that occur, and last some solutions that can be looked

Verbal Response Modes Between Counselor and Client in Early Therapy Sessions

Heather Garcia, Shannon Cooper, Nicole Smith, Margaret White
Jeffrey Kahn

Psychology

Discovering which utterances and interventions are useful in predicting clients' outcome in therapy is beneficial to counseling practice. The purpose of this research was to learn about the different types of utterances used in counseling sessions by the counselor and client as a way of improving therapy. No hypotheses were made as this was an exploratory investigation. Sessions from multiple clients were analyzed for the present study. The clients were college students who volunteered to have sessions video-taped with a doctoral-level counselor trainee in exchange for extra credit. These video tapes were transcribed and coded using the Verbal Response Modes coding system (Stiles 1992). This system classifies each utterance according to its grammatical form and intent. There are a total of eight VRM categories (e.g., disclosure, question) used to code client and counselor utterances. This is an ongoing study and results are currently being compiled. This research may help future therapists become aware of interventions delivered by counselors and types of client utterances elicited by counselors. One limitation to this study is that we only have access to the first three sessions of each client. Future research that could be important for this ongoing study could include linking utterances (such as disclosure) to outcome. The present research will contribute to the counseling field by providing a detailed account of what types of utterances are communicated during counseling sessions.

What Makes a Red State, Red?

Scott Gass
Jill Freund Thomas

Geography-Geology

U.S. media outlets colored Republican states red and Democrat states blue. And even though red states outnumbered blue states, what gave rise to this reddish trend? If demographics illustrate the voters in the 2000 election than red states may be represented by a high percentage of obese, under-educated, Wal-Mart shoppers. Is this the demographic voter of President Bush?

Temporal Relativity

Zack Gaydos
James Stanlaw, Anthony Everett

Sociology and Anthropology

In this paper I will argue that human conceptions about time are dependent upon culture. It has been claimed (Whorf 1941) that separate cultures exist in different realities due to disparate world views that are defined linguistically. Whorf studied the Hopi while developing this theory and noted that Hopi conceptions of time influence the way they perceive the world. I will show this through two languages, Hopi (as a specific representative of the larger Uto- Aztec family) and American English. These two linguistic systems have substantially different views of time that largely shape the respective culture's views on existence. I will demonstrate this correlation with comparative descriptions and explanations of how the movement of time is perceived and understood by the respective languages. The reason I will use this method is that language is the primary human means of semantically explaining the world and perceptions on the passage of time can be clearly demonstrated through language. I will support this claim through comparison using ethnographies, electronic eHRAF files, and specific examples of time-related terminology. Within the debate concerning linguistic relativity, temporal relativity provides a window into the foundational constructions of human semantics.

Are There Developmental Differences in Calibration of Domain-Specific Texts?

Sarah Gerson
Corinne Zimmerman

Psychology

Comprehension monitoring is an important metacognitive skill that is necessary for students to become proficient readers and learners. Calibration is one measure of comprehension monitoring and is calculated by comparing actual comprehension (i.e., score on a test) to confidence ratings or perceived comprehension. In previous research, evidence was found to support the idea that the domain of text can influence calibration performance, and this effect varies with the age or educational level of the individual. In the current study, domain of text will be further explored as a source of calibration variability because the texts that students encounter and learn from are subject-specific. Students at the junior high school, high school, and college levels will read a number of texts from different domains (e.g., science and history). Students will be asked to predict how many questions they will answer correctly as well as providing a confidence judgment. These ratings will be compared to the actual number of items answered correctly to determine if students have better calibration skill for different domains, and if there are any developmental difference in calibration ability.

The Moderating Effects of Job Specific Self-efficacy and Employee Engagement on Job Dissatisfaction and Turnover

Phillip Getchell, Monica Zborowski, Ashlee Bell
Kim Schneider

Psychology

The results of turnover within organizations can be very costly, thus more needs to be known about moderators of turnover. There have been many studies conducted on job satisfaction and turnover, and such aspects such as self-confidence were shown to be a moderator in predicting the likelihood of intent to quit. With this in mind, the concept of self-efficacy is relevant to this topic. One's job specific self-efficacy and level of employee engagement should help predict the likelihood of one experiencing job dissatisfaction, or more importantly, intent to quit. By measuring participants' levels of job specific self-efficacy and engagement as an employee, and comparing that with their ratings of job dissatisfaction and intent to quit, the result should be a negative correlation. Thus predicting outcomes of turnover within an organization. Data was previously collected from 36 Illinois State University students on job specific self-efficacy and correlated with measures of job satisfaction to provide evidence of this relationship. The correlation between job specific self-efficacy and job satisfaction was in the expected direction ($r = .274$), but was not significant. This prior study resulted in the need to investigate further. To gain the data necessary for analyses approximately 250 students of two different courses will be used. These participants are all students of Illinois State University, and they will all complete surveys that measured job specific self-efficacy, employee engagement, job dissatisfaction, and withdrawal cognitions (intent to quit). We expect a statistically significant negative correlation between the predictor and the outcome attributes. The results of this study of 250 ISU working students will be presented at the symposium. It should also provide organizations with a measure that can be used to benefit the workplace. This study will lead to other possible studies, such as investigating other attributes of potential employees before they are hired to help reduce turnover. Another important aspect to explore would be the external validity of this study. The participants used were all college students, and it would be very valuable to know if the results carry over into other participant samples.

Training CIO's to Effectively Align Business Strategies and Information Technology

Matt Gillett, Andrew Brinker, Jeff Doyle
Matthew Kuofie

Information Technology

Currently successful businesses use information technology (IT), however, there are problems with aligning business and information technology. First, a lot of the decisions made in IT are made by business executives who know little about technology, only what they hear from media sources and salespeople. This group includes CEOs, CFOs and CIO's. They expect technology to drive the company. Second, many companies are directed by IT organizations that are technology driven but don't understand the actual needs of the business. They cannot translate business needs into technology solutions. Many IT executives are not able to present a good business case for or against a particular technology. The ones who are in charge of business and the ones who are in charge of technology cannot agree on what alignment for the business consists of, or how to become aligned. There are many companies that could be greatly enhanced through an implementation of technology but think that it is not necessary for them to be aligned, or don't think their alignment can be improved. There are other companies that have the most beneficial technology at their disposal and don't even realize it.

To address the identified problems, we propose a technique called "Training CIO's to Effectively Align Business Strategies and Information Technology." The technique attempts to implement a type of training program within a firm to improve the overall efficiency and performance of the CIO. The potential CIO's will go through an intensive program of training of best practices of business strategies and information technology and their alignment.

We demonstrate the effectiveness of the technique by providing a walkthrough using a case study. Yes, 100 CIOs will be selected and made to go through the intensive training; after successful training, the CIOs will be interviewed just upon graduation and one year after graduation to statistically evaluate the effectiveness of the technique.

Some benefits of the technique is that it addresses the identified problems. Moreover, the CIOs will save their organizations lots of

Parenting Style and Children's Reactions to Conflict

Katherine Gioia
Renee Tobin

Psychology

Parenting style affects children's social interactions and how they see the world. Past research has identified four main parenting styles: permissive, neglectful, authoritarian, and authoritative (Baumrind, 1967). These parenting styles are linked not only to distinct parental characteristics, but also to differences in children's behavior. Building on this concept, Gottman (1997) proposed an authoritative approach for parents to talk about emotions with their children, known as emotion coaching. Research indicates children of parents who are emotion coaches show a variety of benefits including increased ability to cope, better peer relations, and overall increased ability to discuss and understand their emotions (Gottman, 1997). This present study extends this line of research by examining parent's use of emotion coaching on children's ability to solve typical conflict situations. Past research has examined individual differences in personality as they relate to children's conflict solving capabilities (Jensen-Campbell, 2001). The current study examines another aspect of children's ability to solve conflicts, namely the role of the parent. More specifically, the present study manipulates experimentally parents' approach to discussing emotions and examines its interactive effects with parenting style using a person X situation approach. One parent per child participant was randomly assigned to either a no instruction control condition or an emotion coaching condition in which parents were instructed to follow Gottman's five steps of emotion coaching. Following this manipulation, child-parent dyads discussed and rated solutions to typical child conflict situations. Parents and children also completed rating scales that assessed parenting style and a variety of other measures including personality, temperament, and behavior. It is hypothesized that children whose parents are given instructions on how to emotion coach, or parents who display more authoritative parenting styles, will choose more prosocial solutions to conflicts. These and other hypotheses will be presented.

Affects of Ethnicity on Adolescent Dating Violence

Teresa Glaser
Marla Reese-Weber

Psychology

The purpose of the present study was to examine the role that ethnicity plays in the acceptance, tolerance, and definitions of violence, as well as the behavior of adolescents involved in violent relationships. The sample consisted of approximately 120 students, from a local high school, ranging in age from 14 to 18. Participants completed self-report measures of dating violence and responded to a visual stimulus to measure their attitudes towards dating violence. Based on previous studies, it is expected that African-Americans will be more likely than Caucasians to report dating violence. It is also expected that African-Americans will be more likely to be accepting of dating violence as compared to Caucasians.

How Nice is a "Nice Day"?

Meredith Gletty
Susan Burt, Sally Parry

English

This article explores how social distance between people affects the way they speak to one another, and if and how the rules of politeness change in form and importance when the social distance between speakers is changed. The article examines these questions by looking specifically at the linguistic institution of solicitudes, or well-wishings, such as "Have a good day", and how the social distance between speakers affects the form and frequency of solicitudes. In researching this question, members of an Illinois State University sociolinguistics course recorded solicitudes that they overheard or that were spoken to them over the course of a few weeks, as well as the context of the interactions, the gender and age of the speakers, and the social distance between the speakers. The results showed that the majority of solicitudes follow a formula, "Have a {adj.} + {noun}", yet other formulas are also used (eg Happy Halloween) and occasionally solicitudes become more situation/relationship specific. This article seeks to find a link between the social distance between speakers and either the adherence to or divergence from the common solicitude formula. The results showed that speakers who were more familiar with one another were more likely to diverge from the formula or include more specific well-wishings with the formula than strangers were when speaking solicitudes to one another. The results also showed that solicitudes between strangers (specifically in service settings) occurred as frequently as solicitudes between familiar persons despite the differences in form. The article then seeks to explain the difference between the way strangers and familiar persons wish each other well, tries to determine why solicitudes are common within such varied social contexts, and relates the topic of solicitudes to broader implications about politeness and its manifestations in everyday speech. Based on the differences in solicitudes in varying social contexts and the pervasiveness of solicitudes in a variety of social contexts, the article concludes that the rules of politeness are themselves so pervasive that speech acts as simple as solicitudes would have different manifestations in different contexts. What is considered polite changes with situation and social distance, and the fact that each situation is accounted for with a formula or rule concerning what is polite speaks to the importance of politeness to society.

Social Distress and Attitudes Regarding Racial Inferiority

Sandra Golden

Sociology and Anthropology

Jim Skibo, Martin Nickels

In this paper I explore the relationship between racism and social stress. The study focuses on selected anti-immigration and racist movements that occurred in the United States. I focus on four questions: 1) Who constructed the racial inferiority theory? 2) How war or other conflicts affected the society and notions of racial inferiority systems? 3) The role anthropologist played in creating racial inferiority thought. One of the common claims was that one racial group was less intelligent because of biological reasons, which justified acts of violence or legal restrictions. The most common biological factor examined was brain capacity. Such early anthropologists as Samuel Morton and Sanford B. Hunt for example, performed measurements on the brains of black soldiers and reached the conclusion that whites were more intelligent because their brain capacity was larger than the blacks. These studies, I argue, support racist propaganda and were more likely to occur in a society where there is great social strain. This is an important subject to revisit because this kind of behavior can be seen in the treatment of Middle Eastern peoples in this country today.

Brain in a Dish

Adam Gonzales

Communication

Jennifer Parker, Grant Ward, Mike Graupmen

"It is alive!" With these three words Dr. Frankenstein declared success in brain transfusion. He's been the talk of Transylvania ever since. That is, of course until now. According to New Scientist October 1st 2004, Dr. Thomas Demarse, a biomedical engineer at the University of Florida has successfully created a living brain, which lives with out any organs and simply floats in Petri dish. He calls it, "Brain in a Dish". Demarse immediately applied his creation by making it fly an F-22 fighter jet simulator. Sense I can't fly an F-22 and a brain in a dish can, I decided to do more research into this Bazaar development. Biotech Weekly November 10th 2004, says that the brain in a dish is essentially a living computer that will someday be used to fly unmanned aircrafts and handle task that our dangerous for humans. Furthermore, the Brain in a dish has spawned a new line of research dealing with cures for epilepsy and other neurological diseases. First I will uproot the recipe for brain in a dish. Second, I will explain how it flew an F-22 fighter Jet simulator. Finally, I will share information about the present and future applications of this project that the London Times November 22nd, 2004 calls "magnificently creepy".

Who's Your Daddy: An Analysis of Evidence for Multiregionalism and Sexual Interaction Between Homo Sapiens and Homo Erectus in Prehistoric China

Ryan Griffin

Sociology and Anthropology

James Skibo, Martin Nickels

A great deal has been learned about the evolution of the human species over the past several decades yet there is still much that is debated. One of these issues is the origin and evolution of modern humans. Many argue that the human species originated in Africa and then populated the planet, while others argue that humans evolved regionally. I have examined the possibility of sexual interaction and the production of viable offspring occurring between Homo sapiens and Homo erectus when both species coexisted in modern day China and Southeast Asia circa 40,000 years ago. Fossil, genetic, and cultural data were analyzed to determine if there was evidence for multiregionalism and sexual interaction between the two species to be found in the modern day country of China. I analyzed the work of scientists arguing that there is evidence for both the "Multiregional Evolution" hypothesis and the "Recent Out of Africa" hypothesis in the Chinese and other human populations. I analyzed their data sets and any bias they may have had in their selection of data as well. I also reviewed data that analyzed cranial specimens and other fossil specimens of Chinese Homo erectus for evidence of transitions to modern Chinese human populations. Available genetic data from modern day Chinese populations was used to shed light on this question. Finally, a sparse amount of data for physical Homo erectus cultural remains and any changes in them during or around the period of coexistence with modern humans in China was also examined.

Synthesis of the Taxol C-13 Side Chain Using the N4-isopropyl 3,4,5,6-tetrahydro-2H-1,3,4-oxadiazin-2-one

Jonathan Groeper

Chemistry

Shawn Hitchcock

Taxol is a drug synthetically produced by the Bristol-Meyers Squibb Company to combat ovarian and breast cancer as well as Alzheimer's disease. Due to the expensive nature of obtaining Taxol from natural resources, Bristol-Meyers Squibb and others have pursued the artificial synthesis of Taxol. My research project is focused on a synthesis of a component of the Taxol molecule, the C-13 side chain, through the use of an N4-isopropyl 3,4,5,6-tetrahydro-2H-1,3,4-oxadiazin-2-one as a chiral auxiliary.

Isolation of Zebrafish Glial Cells Missing Type-2 (GCM2) cDNA Sequence

Melissa Grunloh
David Rubin

Biological Sciences

Two types of cells, neurons and glia, exist in the nervous system. In studies involving *Drosophila*, it was determined that in the absence of the transcription factor glial cells missing (GCM) that the cells developed into neurons. In mammals, two homologous genes were isolated, GCM1 and GCM2. Studies showed that GCM2 is necessary for the development of the parathyroid gland and parathyroid hormone (PTH) expression in parathyroid chief cells. Fishes, including the developmental model zebrafish (*Danio rerio*), lack parathyroid glands. To determine if zebrafish showed co-localized expression of PTH1 and PTH2 with GCM2, zebrafish genomic databases were searched for a homologous sequence. Using gene-specific primers for zebrafish GCM2 (zGCM2), a cDNA encoding the zGCM2 was isolated (1.491 Kb). The expression of zGCM2 co-localized with the expression of PTH1 suggesting that the brain, in at least fishes, may be an important source of calcium regulation.

On-Line and In Store Buying Practices of College Students

Jancy Gruskowski, Ann Spihmann, Carmen Fike, Kelly VanMeenen
Jean Memken

Family and Consumer Sciences

The purpose of this research was to determine whether college students prefer on-line or in-store buying. Specifically, it was hypothesized that students at Illinois State University will prefer on-line buying over in-store buying. Variables such as transportation, income and available retailers were also investigated. A convenience sample of 350 Illinois State University students completed a survey with questions about shopping habits. Chi-square analysis was used to test the hypothesis. This research has major implications to local retailers as well as those interested in expanding their market to the world wide web.

Trail into the Past: Tracking of a Modern Pueblo Group into Prehistory

Jennifer Gutowski
Elizabeth Scott, James Skibo

Sociology and Anthropology

The American Southwest is the home of a great deal of archaeological research yet there are still questions left unanswered. One such question is the connection between contemporary people and the archaeological remains found there. In this paper I explored the connection between the contemporary Hopi people and the various ancestral pueblo groups of the prehistoric American Southwest. I traced the Hopi of the present into the past by using the archeological record back to about AD1200, examining ancestral Hopi villages, looking at the origin of the Kachina Cult religion, and analyzing Hopi origin stories. Even though the Hopi live in a region that is so rich in archaeological material, there is still some question as to which prehistoric groups were their direct ancestors. I think it is important for both the archaeologists and the contemporary native groups that we make efforts to link the present with the past.

Measurement Uncertainty in a Chaotic Waterwheel

Valerie Hackstadt
George Rutherford, Epaminondas Rosa, Jr.

Physics

The Lorenz waterwheel is a well-known example of a simple mechanical system that exhibits chaotic behavior and can be described by the same set of equations discovered in Lorenz's pioneering study of chaos in atmospheric convection. It is surprising, however, that no experimental study of this mechanical analog of the Lorenz equations has ever been published, especially given the rich structure of the dynamics. We have constructed a research-grade waterwheel to fill this important gap in the literature.

The wheel itself consists of a thin frame of vacuum-formed polycarbonate to which 36 cylindrical cells are attached, long axes perpendicular to the plane of the wheel, at about a 23 cm radius. The wheel is attached to a platform via bearings, and the platform can be tilted to an angle up to 45° above the horizontal. Water is introduced through a metering flow valve into a manifold that allows the angular distribution of the input flow at the top of the wheel to be varied. The angular position of the wheel is measured with a shaft encoder interfaced to a multi-purpose data acquisition board in a desktop Macintosh computer. Numerical differentiation of the angular position time series data gives $w(t)$, and the other two Lorenz variables are not directly measured. Portraits of the strange attractor can be produced via time delay embedding of the $w(t)$ data.

An important consideration in interpreting fine details of the wheel's motion is the possibility of small defects in the wheel's construction or the presence of physical forces not included in the numerical simulations. It is therefore crucial that the sensor used to acquire the data not introduce any artifacts into the data. We will describe our attempts to minimize these artifacts as well as attempts to characterize them with an eye toward removing them from the data after the fact. We also present preliminary experimental data to show various classes of motion of the wheel. Finally, we discuss possible synchronization of chaotic motion to a small sinusoidal disturbance.

Operating Boardmaker

Beth Hadley
Ann Beck, Brian Wojcik

Speech Pathology and Audiology

The purposes of this project are to become more knowledgeable on the use of the Boardmaker Software and to improve the existing multimedia tutorial programs designed to demonstrate its operation. Boardmaker is a program used by speech pathologists and audiologists while working primarily with people who use augmentative communication. Over the course of three months, I will be exploring the areas of Boardmaker. In the first month, I will explore and list the basic and advanced functions of Boardmaker. Secondly, I will critique the existing multimedia tutorials of Boardmaker. This means that I will decide which parts of the programs are good enough to stay in place, and which areas need to be perfected. Lastly, I will create a comprehensive multimedia tutorial for Boardmaker. This includes taking the information I gathered about what needs to be perfected and actually putting the changes into effect on a new

Melanoma and Cellular Automata

John Henderson
Brian Clark

Physics

In this project, a cellular automaton model is used to simulate the growth of malignant melanoma (a form of skin cancer). Of particular interest is using the model to explore statistical information on the occurrence of multiple melanomas on single individuals. Our model assumes that each cell has a probability of becoming cancerous or pre-cancerous. As time evolves, the probabilities can also evolve that the pre-cancerous cells become cancerous or that the normal cells adjacent to either pre-cancerous or cancerous cells will become like their neighbors. The evolution of each cell is explored using a Monte Carlo algorithm. Here we show example of our melanoma growth in our model, effects of different growth rules, and relate this work to available statistical data.

Self-Defining Memory and Its Relationship to Identity Status

Christina Hielsberg
Douglas Hardwick

Psychology

This research is part of an investigation of personal identity in college students. Previous theorizing has suggested that the ability to reflect on events in one's life develops in parallel with identity. Self-reflection on significant events in one's life is thought to contribute to an increased knowledge about self and, hence, to a more mature personal identity. The purpose of the present research is to examine the theoretical relationship between self reflection and identity formation. In particular, we are attempting to identify and categorize the types of events that young adults reflect on and to determine whether certain kinds of events are systematically related to identity formation. Preliminary results indicate that individuals who report their first memory as life threatening in nature have been found to have a diffused identity status. Foreclosed individuals recall memories that have an achievement theme almost fifty percent of the time. Individuals who have an achieved identity status report memories that have a variety of themes. We also were looking for specific lessons learned or insights gained from the memories obtained and found that individuals who are of the moratorium identity status reported memories with both lessons and insights.

Changes in Social Status During Direct DA Agonist Exposure: Effects on Individual and Group Matching in an Optimal Foraging Paradigm

William Higgins
Valeri Farmer-Dougan

Psychology

Ideal free distribution predicts that the ratio of time spent by a group at two food patches will equal the ratio of obtained food at the patches. Unlike the matching law, however, it makes no prediction regarding individual member behavior. Indeed, previous studies show that group behavior conforms to the matching law, but individual behavior does not necessarily. Rather, competitive status of individual members correlates with undermatching values for individuals. Disruption of competitive status, then, should alter individual but not necessarily group matching. Status may be manipulated via drug exposure. Exposure to dopamine agonists has been shown to disrupt social status, thus it should also disrupt individual but not necessarily group matching. This is the focus of the present experiment. Baseline rates of matching and social status were obtained for two groups of rats using CONC FT FT schedules in a large foraging box. High and low status animals were identified. The high or low status rat was then exposed to apomorphine, a direct DA agonist, during a replication of the schedules. Apomorphine disrupted both status and matching for the high and low rats. However, group behavior adjusted to the changes in the high or low status animal.

Magical Mushrooms: New Technology for the Environment and the Human Body

Michelle Hill
Jennifer Parker

Communication

For the past thirty years, Paul Stamets has been extremely involved in the study of mycology--or fungi. Stamets is intent on proving to a skeptical community that mushrooms are far more powerful than they've been given credit for. In fact, according to Alternet.org of August 29, 2004 Stamets argues that, "mushrooms have the ability to heal people and the planet." Until recently, mushrooms were largely ignored by the medical and environmental establishment. However, today Stamets has been able to secure major funding from both public and private agencies to pioneer the use of mushroom technologies. Essentially, Stamets believes that we can both repair and protect our planet (and heal our bodies!) with minimal effort and whole lot of mushrooms.

How Cuba's HIV/AIDS Educational Programs Fail to Address Men Who Have Sex with Men

Julie Hudson
Jim Stanlaw, Gina Bessa

Sociology and Anthropology

In this paper I argue that Cuba's HIV/AIDS preventive programs fail to target, educate, and ultimately prevent the spread of HIV/AIDS between men who have sex with men. In comparison with other Caribbean nations Cuba's overall infection and transmission rates of HIV/AIDS are extremely low, but within Cuba the highest infection and transmission rates occur between men who have sex with men. By examining the educational literature provided to the public by various non-governmental organizations as well as literature provided by the government of Cuba, I show the ways these campaigns fail to address men who have sex with men. I analyze Cuba's overall past and present policies regarding HIV/AIDS in comparison to the cultural ideas of male homosexuality in Cuba. By researching these two topics I explain why there is an inconsistency in Cuba's low overall infection rate and the high level of infection among men who have sex with men.

Computational Studies of Molecular Complexes of Sulfur Trioxide

Brian Ida
Jean Standard

Chemistry

Molecular complexes of sulfur trioxide are important species in atmospheric chemistry. They play key roles in the formation of acid rain and may act as precursors in the development of atmospheric aerosols. In this work, computational methods have been applied to the investigation of molecular complexes of sulfur trioxide with water and ammonia. While these molecular complexes are structurally fairly simple, previous studies have shown that sulfur-containing species are rather difficult to accurately represent by computational methods. Therefore, a variety of density functional theory methods have been employed along with several basis sets in order to characterize the structure, properties, and energies of the SO₃-H₂O and SO₃-NH₃ complexes. The computational results have been compared with experimental gas phase microwave spectroscopy data where available. Our results show that there are significant variations in the structure, properties, and energies of the sulfur trioxide complexes as a function of density functional method and basis set.

The Relationship Between Communicator Style, Student Sex, and Academic Advisement Effectiveness

Audrey Iffert
Mark Comadena

Communication

As universities expand and instructors become responsible for the advisement of a larger number of students, the need to identify effective methods of advisement will only continue to grow in importance. In the past, studies have attempted to decipher the most successful models for college student advisement (e.g., developmental advisement) and provide hints for advisement styles that might function best (e.g., demonstrating concern for student affairs within and outside of the academic realm). The current study sought to elaborate on past research, specifically examining the relationship between an advisor's communicator style and his/her perceived effectiveness in the advisement role. Participants in the current study were presented with a survey and asked to rate the communicator style of their advisors as well as the advisors' effectiveness. Results were indicative that students prefer friendly and precise communication in advisement sessions as well as advisors who are non-argumentative. Results also found that females prefer non-argumentative advising more than do males and that males prefer advising that is more friendly, relaxed, and attentive and less dramatic in style than do females. Such research is currently being utilized as a pilot study for a project continuing in the present semester. This study examines not only the influences of advisors' communicator styles, but also the effects that frequency of interaction and type of interaction (e.g., email, face-to-face, phone, etc.) may have on the overall perceived effectiveness of that advisor across the groups: freshmen, sophomores, juniors, and seniors.

The Influence of Virtual 3-D Corners on the 2-D Muller-Lyer Illusions

Tonja Jameson
Gordon Redding

Psychology

The Müller-Lyer illusion was hypothesized to arise from size distortion of the 2-D drawings by the virtual size of 3-D corners that would produce the drawings according to the rules of linear perspective. The arrow-junction drawing corresponds to a right-angle corner in front of the picture plane and which is smaller than the drawing size, while the fork-junction drawing corresponds to a right-angle corner behind the picture plane and which is larger than the drawing. The drawing station point distance for constant virtual corners was manipulated to produce different size drawings. Virtual corner size was compared to T-junction control stimuli for the corresponding drawings to determine the relative contribution of virtual and picture plane size to participant judgments of size as measured by size reproduction responses. Response to fork-junction drawings of a virtual concave corner was well fit by a function assigning 40 percent influence to virtual size and 60 percent to picture plane size. Response to arrow-junction drawings of a virtual convex corner was less well fit by a function assigning 20 percent influence to virtual size and 80 percent to picture plane size. The common finding of a larger illusion for fork-junction stimuli may be explained by the larger influence of virtual size. For both fork-junction and arrow-junction drawings the illusion (compared to control T-junction stimuli) decreased with increasing station point distance, but the arrow-junction illusion decreased most rapidly. Both arrow-junction drawings and corresponding T-junction control stimuli seem to be subject to some underestimation bias that increases rapidly with station point distance.

College Student's Clothing Behavior from Childhood To Present, and Its Relationship to Their Social Development

Tara Johnson, Allison Kofoid, Sarah McManus, Stephanie Zirin
Jean Memken

Family and Consumer Sciences

The purpose of this research is compare the way that college students clothing behavior as children has effected their current style and social development, and how its' influence on how they perceive the importance of dressing their own child. It was hypothesized that if a student was dressed in fashionable clothes as a child, they are now more socially developed and have continued dressing fashionably. In addition, they believe it is important to dress their own child fashionably. A convenience sample of 350 Illinois State University students completed a survey that correlates how fashion relates to their social development. Students were asked to answer questions about their current and past dress, how it has effected their social development, and about future choices of their own children's dress. Chi-Squared analysis was used to test the hypotheses. This research has major implications for apparel industries

Wal-Mart's Strategy For Site Location and How This Has Affected the Landscape of Towns

Kimberly Jones
Jill Freund-Thomas

Geography-Geology

The popularization of Super Wal-Mart stores in the United States is of interest to communities as well as small business owners. Today, Wal-Mart has over 5,000 stores nation-wide with more opening each year. This success is due to Wal-Mart's ability to offer a variety of products at the lowest price. Typically, Wal-Mart stores have been located in rural areas of the United States. However, recently Wal-Mart has been locating their stores in more urban areas. What does this change in site location mean to urban areas and the landscape of smaller towns? Is there an impact with the increase of Super Wal-Marts with the decrease in large chain stores, and

Modeling a Laser Eradiated Hollow Cathode Discharge

Tom Juskevics, Justin Berry
Brian Clark, Epaminondas Rosa

Physics

This project consists of building a computer simulation of an experimental setup that studies the optogalvanic effect as a means of information transmission. We are trying to imbed a signal into a plasma discharge of a hollow cathode lamp using a tunable laser. We then want to retrieve that signal from the plasma. In order to do so we are trying to understand how the plasma discharge's properties are affected by the laser. The simulation treats the whole system as an electric circuit, where the plasma discharge is modeled as a combination of a capacitor, an inductor and a resistor. When the simulated laser is turned on it affects the various parts of the plasma circuit. Preliminary results indicate consistency with experimental measurements where the laser induces different oscillations on the plasma, depending on the wavelength of the incident light.

The Myth of the Soul Mate

Anne Kincade
Jennifer Parker

Communication

From fairy tales to Meg Ryan movies, our society is consumed by the constant search for that perfect mate. But this steadfast focus on finding absolute happiness can be harmful, threatening not only our own mental health, but affecting our future relationships before they even happen. By looking at the problems, causes, and solutions of this soul mate myth, we'll discover why we convince ourselves that this often unattainable goal is not only probable, but certain.

Education for the Visually Impaired: Changes (or Progress) in the United States Educational System

James King
Gina Bessa

Sociology and Anthropology

In this paper, I focus on two approaches regarding the education for the visually impaired in the United States. The first approach is mainstreaming, which refers to the placement of a disabled/visually impaired student into a regular school setting with itinerant instruction required. The second approach is segregated schooling for visually impaired students/disabled students. The thesis reviews the changes in our understanding of education for the visually impaired through these two approaches and identifies some persistent gaps/problems/impasses facing the visually impaired student in our current educational system. In particular I examine the tradeoff between academic abilities versus the development of social skills that these two systems entail. Finally, I propose that possible remedies to these impasses might lie in the integration of aspects of both educational systems.

Changes in Response Topography and Sensitivity to Reward During Exposure to DA D1, D2, and D3 Receptor Agonists

Rachel Knight, Katie Freske, Michelle Toelle, Clint Boyle, Seshanand Chandrashekar
Valeri Farmer-Dougan

Psychology

Dopamine D1, D2 and D3 receptors may have differential effects on reward behavior. DA D1 receptors may be part of a feedback loop about reward. In contrast, DA D2 receptors may regulate overall response rates, not reward sensitivity. The role of DA D3 receptors is less clear. Research from our lab offers support for these hypotheses: Changes in sensitivity to reward during DA D1 and D2 agonist exposure were correlated with changes in behavioral topography differentially produced by the two agonists. D1 agonist-induced changes in sniffing, grooming, or general search behaviors detracted from operant responding and reduced sensitivity to reward. In contrast, D2 agonist exposure had less effect on sensitivity to reward, but resulted in an overall response reduction. The present study extends this research. Changes in response topography were examined during exposure to a DA D1 agonist (SKF 38393), a D2 agonist (quinpirole), and a D3 agonist (PD128095) across a series of concurrent VI VI schedules. Rates of individual behaviors during baseline, saline, and at each drug dose were obtained. The three drugs elicited topographically different response repertoires correlating with differences in sensitivity to reward. These data further establish how specific DA receptor activity modulates choice behavior.

Measurement of the Efficiency of Minnow Traps in Assessing Populations of Killifish

Kevin Kocot, Jamie Baldwin

Biological Sciences

Robert Preston, George Kidder, Christopher Petersen

Fundulus heteroclitus is a euryhaline killifish (Cyprinodontiformes) which inhabits estuaries in the Northeast United States. This species is a popular research organism which is believed to exhibit behavioral osmoregulation by seeking environmental salinities where osmotic water flow is minimized (assuming all other environmental factors are equal). Wire minnow traps are routinely used to capture these fish for laboratory use. These traps have also been used in attempts to assess populations of this species. Previous experiments (Kneib and Craig, *Estuaries* 24:884-893, 2001; Layman and Smith, *Wetlands* 21:145-154, 2001) have shown that *F. heteroclitus* frequently leave minnow traps after entering, but they did not test the rate at which they do so. We hypothesized that the rate at which fish leave a trap would be proportional to the number of fish in the trap at any time. To test this hypothesis, we mounted two underwater cameras on a trap and video taped fish movement into and out of the trap during 11, 4-hour trials. The relationship between the number of fish leaving the trap per unit time (NL/t) and the number of fish present in the trap at a particular time (NP) was found to be, $(NL/t) = 0.151(NP) - 2.59$, ($r^2 = 0.655$). For 3353 fish observed entering a trap, 2194 or 65% were observed to leave. Because there was considerable variability among the trials and many fish were able to leave the trap, we suggest that minnow traps should not be used for population assessment. (NSF 0111860)

An Investigation of Memory for Pictures in Conceptual Tests

Katherine Kopsky
Dawn McBride

Psychology

This study seeks to examine the picture superiority effect and its prevalence when encoding instructions are manipulated. The picture superiority effect takes place when, after having been presented with a list of pictures and words, participants (p's) tend to remember pictures better than words on a memory test. This effect is seen in explicit tests where retrieval is intentional, however, findings of this effect on implicit tests where retrieval is unintentional are extremely limited. Vaidya and Gabrielli (2000) found a picture superiority effect following a picture naming condition when category-cued generation was used as the memory test. Wippich, Meltzer, and Mecklenbrauker (1998) also found the effect following a shallow study condition in which p's had to merely identify repetitions of items and a category-instance generation test was used. These two groups of researchers are among the first to investigate the role of encoding tasks in yielding a picture superiority effect in implicit tests. One theory that considers the role of encoding tasks is the theory of transfer appropriate processing (Weldon & Coyote, 1996). This theory suggests that memory will be best when encoding and retrieval evoke similar cognitive processes. For example, a conceptual encoding task and a conceptual retrieval task used together should yield better memory for study items. An important assumption in the explanation of the picture superiority effect is the dual-coding hypothesis. This postulation posits that pictures are encoded more meaningfully because they elicit both verbal and imaginal codes, while words use only verbal codes (Paivio, 1971, 1986, 1991). The current study examines the picture superiority effect with regard to these theories. P's will be presented with a mixed list of computer-generated pictures and words and will be asked to internally name the pictures and image the words in separate conditions. Both of these encoding tasks are conceptually-driven. At test, p's will be given a category-cued production task which is conceptual in nature as well. In accordance with these theories, I hypothesize that those in the naming pictures condition will produce the picture superiority effect on an implicit test and those in the imaging words condition will show a word-superiority effect. Since the implicit test will be conceptual in nature, and pictures are generally encoded deeper than words if encoding is not manipulated, I predict that those in the control condition will show a picture superiority effect on the implicit test.

An Interactive Approach to Managing SQA Documents

Vasundhara Krishnamohan , Suba Ramani
Matthew Kuofie

Information Technology

Documenting is an important aspect of business. Creating and managing a document, such as flat filed software quality assurance (SQA) plan document, can be time consuming and tedious. Also these documents are dynamic; the documents have to be constantly updated. To address these problems, this paper presents a methodology called an Interactive Approach to Managing Software Quality Assurance (I-AM-SQA). I-AM-SQA presents a methodology for storing SQA documents in a database instead of flat files. The components of this methodology are an SQA Specialist, SQA Plan template, MS-QAP interface, DB-SQAP database, and a database analyst. The use of this methodology helps to reduce or eliminate the tedious effort required for the creation and management of SQA plan documents. The methodology also reduces SQA document redundancy and helps to promote high quality software.

Annalyzing Funding of Public Education System Via De Facto Segregation

Andrew Kudla
Jennifer Parker

Communication

Recent research surrounding public education funding has revealed startling displays of race segregation, class segregation, and an overall lack of equality in the system. Dr Sheryll Cashin examined these trends in her 2004 book, "The failures of integration" revealing that public schools are more segregated than neighborhoods, with minorities bearing the brunt of the overwhelming disparity in resources and academic achievement- the point of education. Additionally, programs designed and proven to benefit low-income students are being fraudulently eliminated. Congressman Chaka Fattah told the PR Newswire on February 7, 2005., despite haughty rhetoric about serving our neediest students, the White House Budget released today actually eliminates a critical education program—GEAR UP, which ensures that more than one million low income middle and high school students have the tools the need to excel academically. Given the budget for education diminishes at a rate preventing the most critical students from receiving quality education- a system designed to be a right- not a priority for the highest bidder, it is now more important than ever to reevaluate the public education system as racist and classist. Simply, our education system is separate and unequal. The segregation is only entrenched as a generations of families are not only unable to breach poverty, but kept from advancing up the ladder by a system of education that favors the upper middle class, and creates receiving a quality education virtually nonexistent. Therefore, to re-define the travesty that has become education, we must first examine how a system can exist that leaves plenty of children behind, next identify the effects of the racial and class segregation, before finally outlining solutions to save the disparaging state of our nations schools.

Synthesis of Atazanavir

Stephanie Kuschel
Shawn Hitchcock

Chemistry

Reyataz is a commercially available HIV protease inhibitor that is made and sold by Bristol-Myers Squibb. HIV protease inhibitors were first researched in the mid-1980s; they have been used in the treatment of HIV infection and are considered one of the major breakthroughs in over a decade. My research is focused on developing a preparation of Atazanavir, a key component of Reyataz, using a novel class of chiral auxiliaries known as 3,4,5,6-tetrahydro-2H-1,3,4-oxadiazin-2-one. The synthetic pathway that is planned involves the synthesis of the oxadiazinone from (1S,2R)-norephedrine and its use in an asymmetric aldol reaction.

Communication Climate in Commercial Business Organization

Lim Kyu-young
Tim Longfellow

Marketing

There are many ways for effective communication with clients. The Staff in commercial company needs to build a good relationship with their clients. Some of clients are frustrated by bad communication, so they should focus on their quality of communication, concern for clients. It is an extremely important, and can be improve company's sale highly by effective communication with clients.

This report based on the research that is the Pushworth group's business communication with clients, and also it will design from objective and empirical data result (SPSS DATA). The Pushworth Group is one of Australia's largest entertainment service companies based in Brisbane, Australia and has been dealing with more than 300 artists and 200 venues since 1991.

The research is a process of planning, executing and investigating in order to find answer to specific questions. So the research result could be at help real business situation, particularly it will assists for effective communication between staff and client relationship, and also it finds that what is strength and weakness components in company's communication with clients. Sometimes people who work in business industry hard to communicate with clients, it is also very much issues, nowadays.

This report will attempt to derive appropriate result of effective communication through various research methods such as quantitative analysis; it involves using statistical data about large and valid samples to determine relationships between 2 or more factors (independent valuable, and dependent valuable). Furthermore, it will list each primary and secondary question, and justify what is the best way to approach good communication in overall organizational management.

Effect of Ring-Strain on the Aqueous Reaction of Spiro-Acetals

Joseph Labuda
Richard Nagorski

Chemistry

The catalysis of reactions by enzymes is a topic that has provoked much thought and discussion. One theme that occurs with much regularity is the induction of strain in the substrate molecule that in turn increases the intrinsic reactivity of the molecule itself. The effects of strain on hybridization and bond angles are topics that are well understood. However, the effect of strain on the reactivity of molecules and, specifically, different types of functionality, is still not a well understood topic. The study presented here details the synthesis of the ethylene glycol acetal of benzocyclobutenone, 1-indanone, 2-indanone, -tetralone, and 1-benzosuberone. The acetals, of the ketones listed above, have differing levels of ring-strain incorporated into their alkyl rings attached to the aromatic ring. As ring-strain increases, the carbonyl carbon should be more stable in the sp³-hybridized state than in the sp²-hybridized state. We present the results of our kinetic analysis in the aqueous reaction of the acetals as a function of pH, and the correlation of these rate constants to the ring induced strain in the molecules.

Mentoring Program Design for the Deaf and Hard of Hearing Sequence

Sarah Lasky
Sharon Litchfield

Special Education

This presentation is a proposed design for a mentoring program for the Deaf and Hard of Hearing Sequence of Special Education. Included in this presentation is a step by step process in which instructors, mentors, and mentees can follow to benefit from the program in the greatest manner possible. Research on existing effective mentoring programs, characteristics of effective mentors and mentees, the origin and definition of mentoring programs, and individual versus group mentoring has been incorporated into the mentoring plan. Utilizing this research, I have proposed a possible formalized step by step mentoring program specified for students in the Deaf and Hard of Hearing Sequence. The purpose of this presentation is to help students in the Deaf and Hard of Hearing (DHH) Sequence get more involved in and benefit more from their education. The intended outcomes of this project are to portray the possible effectiveness of such a program and to supply a helpful, manageable, and accepting program for students in need of and with the desire for assistance in this major.

Expert Influence on the Perceived Vanishing Point of a Moving Stimulus

Jonathan Lindsey, Brian Seanor
Scott Jordan

Psychology

When people indicate the vanishing point of a moving stimulus, previous studies have shown the perceived vanishing point is displaced beyond the actual vanishing point. Recent studies (Jordan & Hunsinger, submitted) indicate that with practice and experience controlling a moving dot, the amount of displacement a participant indicates increases. Our study continues to explore possible causes for the increase in displacement. In Phase 1, participants control the dot, either with another naïve controller or with an expert; experts being designated as a group who has performed the task multiple times. Another participant (the observer) observes the movements of the dot and, when it vanishes, indicates the perceived vanishing point. After 40 trials, the participant who just gained control experience then completes 40 trials as an observer while the expert controls the dot alone (i.e., Phase 2). Our predicted result is that participants who control the dot during Phase 1 with an expert instead of a naïve partner will have longer displacements than the latter. Results of this kind could result from the building of forward models that allow a participant to anticipate the actions of the moving stimulus.

Using Ceramics to Validate Medieval Piast Trade Routes

Jesse Little
James Stanlaw

Sociology and Anthropology

In this oral presentation I will be verifying the historical trade routes of the Medieval Piast Dynasty using ceramic data. It has been claimed that the decoration and morphology of fine wares can be used to show and verify medieval trade routes and give an inclination of political ebb and flow. I will show that historically traced trade routes need to be archaeologically confirmed, by ceramics in this case, in order to show validity through scientific data. I will demonstrate this with ceramic evidence from archaeological sites and with data from the Medieval Pottery Research Group and the Slavia Foundation. The reason for this is that historical sources can be biased, incomplete, or false and may give an inaccurate representation of a culture or a particular aspect of that culture. I support this claim by analyzing the decorative and morphological aspects of ceramics found at archaeological sites on and around the historic trade routes of the Piast Dynasty (A.D. 926–1370) in Poland. Due to the reoccurring loss of statehood and frequent political upheaval, Polish scholars have to rewrite their lost history. This paper offers a scientific and systematic look at the historical data when compared to contemporary material culture in an effort to help them achieve their goals.

MIT's Open Course Ware

Katherine Lloyd
Jennifer Parker

Communication

This speech is a closer examination of MIT's Open Course Ware program. Open Course Ware is MIT's attempt at long distance learning initiatives. However while most are trying to profit from these programs MIT is providing this service for free. The implications and applications of this endeavor is not only affecting the United States but those around the world. It is a statement in the face of over priced education and elitism.

Let Everyone Play

Tabitha Major
Cynthia Brown

Theatre

No matter the background or the ability of the student, they are entitled in all classrooms to receive an education free of exclusion. This project focused on creating a resource for teacher education students, especially those students interested in teaching theatre. Its goal was to help future teachers create a classroom environment that includes all students. The idea of being inclusive in the classroom is particularly challenging when dealing with students who have a range of disabilities. As future teachers, we must be aware of who these students are, what their challenges are, and what responsibilities we are going have in teaching them. During a three month process of collecting research from special education textbooks, books on how to teach theatre, and other various educational materials, a simple handbook was created. The information in the handbook includes a vocabulary word bank which was used to create a familiarization of key words used when working with students who have different types of disabilities. Finally, a section on teaching techniques that can be used in the everyday classroom was developed. This handbook was created for future teachers to familiarize themselves, with these educational issues. The activity work book was created so that teachers could learn how to apply different techniques to their lesson for different disabilities, making it possible for all students to participate in theatre activities.

Sibling Violence and Attitudes: Differences in Family Structure and Sibling Dyadic Characteristics

Thomas Malczyk
Marla Reese-Weber

Psychology

The purpose of the current study is to investigate whether the structural components of families and sibling dyads as well as attitudes toward violence are related to the violence in which siblings may display toward one another. Data was collected from 209 college students using questionnaires assessing demographic information, adolescent attitudes of violence, and adolescent violent behavior. Data analyses are expected to find (1) adolescents from divorced or remarried families have greater rates of sibling violence than intact families; (2) boy/boy sibling dyads are more violent than sister/sister or brother/sister dyads; (3) closer spaced siblings will display the most frequent use of sibling violence; and (4) adolescent attitudes toward violence are expected to be related to the acts of

Substituting Flours to Make a More Palatable Blueberry Muffin for Persons with Gluten-Sensitive Enteropathy

Nisa Maleki, Megan Kochanek, Amy Emmerson, Laura Kennedy, Lindsay Jarvis
Nweze Nnakwe

Family and Consumer Sciences

It has been proven that the occurrence of Gluten-Sensitive Enteropathy is more prevalent than previously thought. Therefore, there is a need to produce an acceptable product for those individuals with this disease. The purpose of this study is to determine which gluten-free flour mixture produces the best muffin. In the study, two gluten-free muffins were compared against a regular blueberry muffin containing gluten. Each gluten-free muffin contained a different mixture of flours. Gluten-free experimental (mixture) 1 contained potato flour, rice flour and tapioca flour and experimental (mixture) 2 contained corn flour, potato flour and rice flour. The muffins underwent objective and subjective testing. The muffins were tested for tenderness and viscosity using a Penetrometer test and a linespread test respectively. Before baking, experimental 2 (9.7mm) was more tender than experimental 1 (8.5mm) and the control was the least tender (.2mm). After baking, the less viscous and less tender batter yielded a more tender muffin. The three coded samples were distributed to forty-nine participants. The participants evaluated the muffins on taste, texture, appearance, moisture and overall quality. After gathering the results, they were statistically analyzed and interpreted. The control muffin was preferred over the two gluten-free muffins; this was significant at $p < .000$. Of the two gluten free mixtures, experimental 1 was found to be more acceptable by the participants over experimental 2, ($p < .000$). This study can contribute to the production of quality gluten-free products. More studies need to be done to improve the overall quality of gluten-free products.

Exercise Habits of Illinois State University Students: How Males and Females Compare

Jenna Mandolini, Dana Dole, Melissa Feige, Lauren Ward
Jean Memken

Family and Consumer Sciences

The purpose of this research is to compare the exercise habits of males and females that attend Illinois State University. Specifically, it was hypothesized that males and females will differ significantly in their exercise habits. A convenience sample of 350 students at Illinois State University will complete a survey related to exercise habits. Students will be asked to identify their gender and answer a series of questions related to their physical activity, exercise frequency, and methods of exercise. Chi-square analysis will be used to test the hypotheses. This research has major implications to the students of the university as they consider their current and future exercise habits and health.

The Birth of a Language: Understanding the Impact of Nicaraguan Sign Language

Shannon Maney
Jennifer Parker

Communication

A new language has emerged in Nicaragua in the past thirty years, created entirely by deaf children with no exposure to language at all. The published results of the findings provide insight to the study of language and communication. In order for the average undergraduate student to understand the impact of this discovery, this presentation applies language theory to the findings of Nicaraguan Sign Language in order to draw out critical implications regarding language and communication.

Killing the Amazon Through Modernization

Rachael Masa
Jill Freund-Thomas

Geography-Geology

Although the developed world is usually blamed for threatening the Amazon Rainforest, surprisingly the Brazilian Government is the largest threat of all. The Brazilian Government's goal is "to implement programs to achieve a well-balanced development...and...to keep the region's natural resources available for future generations" (Arruda, 1993). These modernization programs involve the implementation of mining, increased cattle ranching, gas reserves, major roads, and hydroelectric powered dams. Since the Brazilian Government believes the most direct threats of the Amazon Region are narcoguerrillas, drug trafficking and smuggling, they have appointed the Brazilian Army to protect this region from criminals. This poster demonstrates the Brazilian Government's modernizing programs and strategies only defeat the purpose of their overall goal to develop while preserving their natural

A Critique of the Out of Africa Model

Michael Maystadt
Martin Nickels, James Skibo

Sociology and Anthropology

In the scientific community, there is a general consensus as to the origin and history of modern humans; most anthropologists agree that the earliest members of our species, Homo sapiens, emerged in Africa relatively recently and migrated to all parts of the earth. Stringer claimed that Homo sapiens only emerged in Africa. He based this on the fossil record, which showed that the oldest Homo sapiens fossils are from Africa. Mitochondrial DNA (mtDNA) lineage studies by Wilson, Cann and Stoneking in the late 1980's and early 1990's also reinforced this model. The Out of Africa model therefore states that all Homo sapiens evolved in Africa quite recently (circa 150,000 years ago) and replaced all other forms of the genus Homo with little or no interbreeding between the two. Wolpoff has been a strong critic of the Out of Africa model; he claims that modern humans evolved in separate parts of the world and have been exchanging genes for hundreds of thousands of years. He cites contradictions in Stringer's argument such as the non-African appearance of early Homo sapiens fossils outside of Africa, and inconsistencies in the interpretation of mtDNA evidence. Templeton has also raised questions regarding the mtDNA evidence and what it actually shows. This paper demonstrates that there are significant inconsistencies between the Out of Africa model and all the available archaeological, fossil, and mtDNA evidence. The conclusion reached is that the Out of Africa model is not a legitimate explanation for the emergence and subsequent spread of Homo sapiens.

Money Management: Differences Between the Spending Habits of College Men and Women

Kathleen McCarte, Amye Ulrich, Michael Swiatkiewicz, Whitney Titus, Alison Morgan
Jean Memken

Family and Consumer Sciences

The purpose of this research project is to compare college men and women in terms of money management behavior. We predict there will be a significant difference between the spending habits of college men and women. We used a convenience sample of 350 ISU students. We used a survey to collect our data. Students were asked specific questions about their spending and saving habits. Chi-Square was used to test the hypothesis. Results showed that college women spend more per month than college men.

The Current 9-1-1 Emergency Response Service: Why Isn't It Helping Us?

Kelly McCarthy
Jennifer Parker

Communication

9-1-1 Emergency Services are ineffective. Every person is affected. Ninety-nine percent of the population has some form of 9-1-1 and every year, an estimated 200 million calls are made in the United States. However, people are not being helped promptly due to non-emergencies, pranks and mistakes. Obviously, the implications of this problem are making it necessary to reach some solutions. First, we will see how 9-1-1 is ineffective by looking at how phone lines are tied up and dispatchers are often confused, then we will see why this problem exists by seeing the mistreatment and overuse of 9-1-1 and excessive hang-up calls, and finally, offer some solutions both on the personal and institutional levels.

Reconstruct Embedded Images Using Reflected and Transmitted Light*

Kimberly McGill
Rainer Grobe, Q. Su

Physics

We examine the range of validity of an optical imaging algorithm for a model diffusive medium [1] based on intensity modulated laser light. The location and the scattering profile of an embedded object can be reconstructed from the reflected light as a function of the modulation frequency. We present a detailed derivation of the inversion algorithm and show how its limitations affect the quality of the image. [2]

* Supported by grants of the NSF, Research Corporation, Illinois State URG and Honors Program.

[1]G.H. Rutherford, M. Marsalli, Q. Su and R. Grobe, Phys. Rev. E 68, 066618 (2003).

[2]K.N. McGill, Q. Su and R. Grobe, Las. Phys. (in press).

Causes of Homelessness

Caitlin McKenna
James Stanlaw, Gina Bessa

Sociology and Anthropology

I will argue that a combination of approaches and solutions is needed to help the people living on the street. There are many common beliefs on why people live and remain on the streets and different approaches as to how to solve the problem. There are four main approaches to looking at the causes of homelessness; (1) the bio-medical approach, (2) a global economics approach, (3) a personal responsibility approach, and (4) a social approach. While different groups employ each of these approaches, a holistic approach has not been used to date. I will show that this holistic approach will work best for helping more people leave and remain off the streets. I will be using ethnographic data collected personally and from ethnographic work of other anthropologists such as B. G. Russell's work " Silent Sisters: An Ethnography of Homeless Women". I will also be using data collected by social workers studying the field of homelessness. This research will provide a unique look at the causes of homelessness and new solutions for assistance programs to aid the homeless.

Children's Discovery Museum Study

Robert McNamara
Dr. Greg Braswell

Psychology

160 adult-child dyads participated in naturalistic observations while visiting the museum over an eight week period. 99 children came with their mothers, 26 came with their fathers, and 35 came with grandparents, relatives, or other caregivers. The observations were done by using a time-sampling method which gave a total of 20 codes per dyad. There were four observational categories: Social Involvement (engaged or disengaged), Affect Expression (pleasure, displeasure, neutral), Parent Action toward the child (orienting, teaching, joint activity, discipline, affection, onlooker, absent), Type of Child play (construction, art, physical, onlooker, affection, make-believe). Our most significant finding was the difference in child pleasure when the parents were onlookers compared to absent.

Firefly

Jessica Melville
Laurie Merriman

Theatre

“Firefly” is an on-going creative choreographic process. In this case, the creative process was initiated with an exercise in brainstorming a theme- an idea of what to create a dance about. After a process of free word-association a complex duality was developed. The emotions a small child feels while chasing fireflies were juxtaposed against and simultaneously interlaced with the flight patterns and movement qualities of the firefly itself one another. An overlay of the deeper question of what it means to chase, fleetingly seize, fail, and move on also developed within the work. In the discovery of a piece of music, Ysaye Quartet’s “String Quartet in F minor [second movement]”, reminiscent of the wings and flight of a firefly was another significantly influential step of this first, conceptual stage. The music also embodied the emotional structure of desire, loss, and new-sprung joy. A second developmental stage began wherein these abstract concepts became transposed into movement and choreographic design. A chosen dancer was then brought into the studio process. Movement generated through a process of improvisation, experimentation, and persistent revision began to take shape. The final movement chosen became a formal, concrete representation of and inspired by the movement of insects, by the emotional implications abovementioned, and by the arrangement of the music. Performance completes the final stage, realization, of this choreographic process. Production elements such as lighting elements and costumes provide an environment in which the movement can best communicate the ideas to the audience. “Firefly” has been presented and documented intermittently throughout the creative process. A final vision of “Firefly” will be realized in performance at the Illinois State Dance Theatre Student Choreographed Dance Concert on March 26, 2005.

Human Choice Under Heterogeneous Reinforcement

Dustin Merrill
Thomas Critchfield

Psychology

College students worked in an operant choice task in which two kinds of responses could be performed. The probability of earning monetary reinforcers varies for the two responses, and this probability was manipulated across experimental conditions. In addition, the size of the monetary reinforcers differed for the two responses. The experiment tested two theoretical predictions: that the difference in reinforcer size should bias effort allocation toward the bigger reinforcer, and that having nonidentical reinforcers should make individuals more sensitive to the differences in reinforcement probability. The first prediction was supported; the second was not.

Rhetorical Analysis of Sexism in a Politically Correct World

Sarah Messer
Sally Parry, Amy Robillard

English

For this year’s Undergraduate Symposium I will present a paper dealing with the rhetorical nature of sexism and how it impacts two seemingly different issues; reproductive rights, and the transgender community. To frame this argument I will tie in the thought of political correctness and how it helps us to evade discussions of sexism. It seems that we are constantly conditioned by Western thought to believe that all people truly are equal, that racism, homophobia, and sexism are long gone, that these types of discrimination are no longer acceptable and therefore do not happen. However, what is at the root of the issues of abortion and transgender-phobia very simply put is deep seeded sexism. To prove this perspective I will conduct a rhetorical analysis of texts and images from both sides of these arguments. I may draw from Barry Glasner’s text, The Culture of Fear.

I have taken many courses in the Women’s Studies sequence here at Illinois States, classes that stress the importance of understanding sexism and its powerful nature. It never fails that a member of any class will object to the dangers of sexism by indicating that she has never been discriminated against, herein lies the threat. Sexism is usually most damaging when it is subtle or casual. If we evade discussion on sexism or just simply fail to admit that it still exists then we will keep subverting women, and continue to insist on compulsory heterosexuality.

Sexism functions rhetorically as a means of justification for gender roles, for women being paid less for the same work as men, and moreover to further my point, as a way for women’s bodies to be controlled primarily by legislation enacted by men. Sexism also justifies the stigma that surrounds the “gender deviance” of a person who is transgender. Our culture of sexism is a very conservative force that will not illicit change. A rhetorical analysis of this system of oppression will hopefully help to show the relevancy that sexism still has today, thus moving forward to change.

Down Low Behavior

John Metzler
Jennifer Parker

Communication

According to the 2004 book "On the Down Low: A Journey into Lives of "'Straight' Black Men Who Sleep With Men" by J.L. King, a new dishonest and deadly trend in the African American community is men who live on the down low. These men call themselves heterosexual, have girlfriends, wives and children but also have sex with men. The fact is men on the down low are being dishonest with women with whom they are physically intimate. Labels are not the problem; people are free to call themselves whatever they want. However, the cultural situation that pushes these men to such actions, as well as the emotional and physical health of these men's girlfriends, wives, and children demands our attention. Further, this is not a new problem, but efforts from people like King are bringing new attention to it. Some, in the African American community have adapted a "don't ask, don't tell" policy for men on the down low. We are thoroughly aware of the consequences of silence. We need to be aware of both male and female silent victims. In order to do so, we will investigate the causes, effects, and solutions necessary to sexually liberate and protect those who are unknowingly putting themselves at risk.

Protonolysis Reactions of Hydrotris (3-tert-butyl-5-methyl pyrazolyl) Borate Supported Divalent Ytterbium Complexes

Sean Miller

Chemistry

Gregory Ferrence

The coordination chemistry of the lanthanides is commonly controlled through careful selection of supporting ligand. Our laboratory along with the Marques, Sella, and Takats laboratories have been examining the chemistry of divalent ytterbium complexes supported by substituted hydrotrispyrazolylborate ligands. This presentation will focus upon comparing and contrasting the synthesis of a series of hydrotris(3-tert-butyl-5-methylpyrazolyl)borate (TptBu,Me) supported divalent ytterbium alkynide complexes, [(TptBu,Me)Yb(CCR)]₂, (1) via two routes. Preparation by the lead author of trimethylsilyl- (1a), phenyl- (1b), and tert-butyl- (1c) alkynide variants from (TptBu,Me)Yb(CHSiMe₃)(THF) (2) in both coordinating ether and non-coordinating aromatic solvents will be compared with analogous preparations by Ferrence and Takats using the divalent lanthanide hydride, [(TptBu,Me)Yb(μ₂-H)]₂ (3). Complex 3 is prepared from 2 typically in ca. 50% yield; however, very pure alkynides may be prepared from 3 in essentially quantitative yield. With the clean characterization of 1a, 1b, and 1c available for comparison, it is of interest to us to establish a higher overall yield route to the pure alkynides by preparing them directly from 2, the precursor to 3.

Getting From Here to There: Navigation Strategies Used When Giving and Following Directions

Jennifer Minarik, Kimberly Hopkins, Deah Partak

Psychology

Alycia Hund

Finding our way through the environment is essential to human functioning. Often, people give and follow directions to facilitate navigation. The goal of this investigation was to understand the strategies people use when giving and following directions for navigation. Experiment 1 was designed to examine whether landmarks or cardinal directions are more effective as navigation tools. Moreover, it assessed whether spatial anxiety, map confidence, and wayfinding strategies play a role in navigation. Sixty seven undergraduate students were asked to read directions printed on note cards in order to navigate from a starting location to a final destination using cardinal and landmark directions. Specifically, they moved a toy car through a fictitious model town so that it followed the designated routes. Participants also completed a self-report questionnaire about their spatial anxiety, map confidence, and wayfinding strategies. As predicted, participants were more efficient when following cardinal directions than when following landmark directions. In addition, participants who reported higher spatial anxiety made significantly more errors in our task. Finally, people who reported greater reliance on orientation strategies (e.g., maintaining an overall sense of direction based on global cues) were more efficient when following cardinal directions. Experiment 2 was designed to examine the strategies used when giving directions to others to aid in navigation. Participants were asked to write down the directions they would give to help someone get from a starting location to a destination in our fictitious model town. On half of the trials, participants were asked to write down the directions they would give to someone driving in the town (e.g., using a route perspective). On the remaining trials, they were asked to write down directions for someone looking at a map of the town (e.g., using a survey perspective). We expected that participants would give directions containing left or right turns, landmarks, and street names when addressing a person driving in the town. In contrast, they would give directions containing cardinal descriptors, distances, and street names when addressing a person looking at a map. Preliminary findings support these predictions, revealing important details regarding how people give directions to help others navigate. Together, these findings provide evidence concerning the strategies people use when giving and following directions to get from place to place.

Seeing Where You Can Fit (While Carrying Something)

Jennifer Minarik, Kim Hopkins
Jeffrey Wagman

Psychology

People are generally aware of the size of their own body and the limits that their body size places on their ability to perform certain behaviors. For example, people are generally able to determine whether they can or cannot fit through a certain space. Previous research has shown that people accurately perceive how wide a doorway must be for them to walk through it. In this experiment, we investigate a related issue—whether people accurately perceive how wide a doorway must be for them to walk through it while carrying an object. We investigated this perceptual ability in both vision (when the object could be seen and not felt) and in touch (when the object could be felt and not seen). Our results suggest that although participants are more conservative when performing this task by vision than when performing this task by touch, they are equally able to perceive whether they can fit through the doorway in each case.

The Analysis of Caloric Expenditure with the Use of Pedometers Comparing Walking and Riding the Public Transportation System of Illinois State University

Annette Monk, Brandy Mohr
Dale Brown

Kinesiology and Recreation

It is clear that physical activity plays a vital role in the health and well-being of U.S. citizens. While the benefits of physical activity are well-known, most Americans do not get the recommended amount of physical activity. Furthermore, as a person ages, their level of physical activity declines. Since college-age students are developing habits they will carry on throughout their life, it is important for them to understand the benefits of participating in various forms of physical activity. Objective: The objective of this research was to compare calories expended during walking to calories expended when riding the Redbird Express around the campus of Illinois State University. Methods: Two subjects wore two pedometers, one over the right iliac crest and one over the left iliac crest four pedometers were used total. The pedometers were set for each subject's weight and stride length in order for the pedometers to accurately measure miles walked and calories expended. Once all four pedometers were calibrated, five routes on campus commonly used by Illinois State University students were chosen. It was kept in mind that the walking routes included shortcuts through the campus and did not follow the exact route a bus would take; however, the beginning and end points were the same. These routes were then walked by the two subjects and all data was collected and recorded. After the walking portion of this research was completed, the subjects traveled each route again using the Public Transportation System. Results: The data showed that a college-aged individual will expend 42 times more calories by walking from point A to point B, than by arriving at the same point by means of riding public transportation. Subjects burned an average of 67.5 calories by walking approximately 0.74 miles, compared to an average of only 1.3 calories expended when public transportation was used to travel the same route. Walking approximately 0.5 miles, our subjects burned almost 45 calories, compared to riding the public transportation the same distance and only burning less than 5 calories. Conclusion: After completing the study and analyzing the data, we conclude that it is more beneficial for a college-age individual to walk than ride public transportation. The benefit is a higher caloric expenditure, which aids in the attainment or maintenance of a healthy body weight, and an increase in physical activity, which leads to a decrease in overall morbidity and mortality rates from all causes.

Decisions About Ecological Management: Do People Differentiate Between Lay and Expert Opinions?

Andrew Monroe
Corinne Zimmerman

Psychology

There has been an increased need for public participation in decisions about ecological issues. Given that the dynamic and complex nature of ecological systems is often poorly understood, it is especially important to understand how individuals evaluate ecological problems. An experiment was conducted to explore a number of factors that may influence individuals' opinions about an ecological management situations. The overabundance of Asian Lady Beetles in the Fall offered a timely scenario. Fictitious news articles were constructed in which it is proposed that a biological control agent be introduced to manage the lady beetle population. Newsbriefs contained the opinions of either experts or the general public. Such opinions expressed either support for, or opposition to, the proposal about biological control. An additional factor that was explored was self-reflection. This was manipulated by having participants make judgments about their own level of scientific knowledge either before or after reacting to the the news brief. Preliminary results indicate that when participants reflected on their scientific knowledge prior to reacting to the news brief, they expressed more certainty in their opinions. Participants' level of support for the proposal mirrored the opinions expressed in the news article, regardless of whether that view was expressed by the public or an expert (e.g., a scientist). That is, experts' opinions were weighed equally when compared to those expressed by the lay public. Implications of these findings will be discussed.

Responses to Perceived Motives

Andrew Monroe
Glenn Reeder

Psychology

As there is no universally agreed upon consensus of what is appropriate interpersonal behavior, sexually harassment can be largely ambiguous. In such situations perceivers often look to the surrounding situation to gain information about possible motivations for behavior. The current research examines motive inference as it relates to sexual harassment. Participants were randomly assigned to one of three conditions (sexually harassing, hostile, or control). In these conditions participants were given some information pertaining to possible motives. Following this, participants watched a video of an older male instructor training a female student in which the trainer briefly leans over the student. Finally students judged the trainer's behavior, motives, and their own emotional reaction to the video. Our manipulations checks suggest that our manipulations were effective. That is participants in the sexually harassing and hostile conditions attributed congruent motives to the target person (i.e. the target person was perceived as having a sexual agenda in the sexually harassing condition). These and other findings will be discussed in a poster presentation.

Construction and Privilege: An Examination of Interracial Unions in Contemporary America

Ketra Moore
Jim Stanlaw, Gina Bessa

Sociology and Anthropology

This thesis will examine interracial unions as a violation of an unofficial apartheid in contemporary America and the shifts in racial identity that this violation can cause in white women unified with black men. I will examine the social construction of whiteness as a racial identification with adhered racial privileges and the ways these collapse for individuals in interracial unions. Social and political scientist Ruth Frankenburg claims white women become "unwhitened" through their alliances with men of color (Frankenburg 1993). I will show which racial privileges are lost or withheld from white women who cross racial boundaries. I support this claim through personal ethnography, historical data, ethnographic research, and scholarly journals. This thesis offers a personal ethnographic perspective on white privilege and racial identity in interracial unions.

Internal Auditing: An International Perspective

John Moravec
Malcolm McClure

Accounting

For the undergraduate research symposium, my presentation will focus on the Sarbanes Oxley Act of 2002. Firstly, I will explain the fundamental purpose for conducting Sarbanes Oxley tests. Next, I plan to introduce my main hypothesis. Essentially, my main argument is that the SEC and foreign corporations need to agree upon Sarbanes Oxley internal auditing standards to ensure audit success. To carry out this argument, I will discuss the financial and legal necessity for implementing Sarbanes Oxley testing in Europe. I plan to create a fictional transaction that demonstrates how potential dilemmas could arise if internal auditing procedures are not in place. I will also discuss various economical, political, and social differences between the U.S. and certain European nations which will challenge international corporations located within Europe and U.S. based corporations with subsidiaries in Europe to meet audit requirements. After outlining these potential dilemmas, I will provide solutions. My answers will be based upon strategic management philosophies. Finally, I plan to conclude my presentation with a practical perspective by arguing that the enforcement of standardized internal auditing procedures globally could potentially change foreign nations' economic systems in a detrimental manner.

Shopping Preferences and Behavior of College Students Based on Geographical Location and Technology

Emily Morgan, Linda Backeberg, Krystin Everhart, Erin Garofalo, Claire Nevell
Jean Memken

Family and Consumer Sciences

The purpose of this research was to determine the shopping preferences among college students from central Illinois vs. college students from the suburbs of Chicago. College students from central Illinois will more frequently shop at discount chain stores, where students from the Chicago area will more frequently shop at higher end department stores and boutiques. College students from central Illinois would prefer to shop through catalogs and the internet because they do not have easy access to shopping establishments. Students from the Chicago area would shop at stores and boutiques because they are closer to these establishments. A convenience sample of 350 students at ISU completed a survey related to shopping preferences. The students answered questions about their geographical location, shopping preferences, access to shopping establishments, comfortability with technology, and with giving their credit card information out over the internet or phone. This research has major implication to the building developers and contractors who decide where to place shopping establishments. Catalog companies and store websites could advertise and make more accessible to college students.

Native American Cultural Reformation and Indian Schools

Jacquelyn Myers
Bill Philpott

History

I will be conducting research on the Native American population in the years after the Civil War. I will specifically focus on Native American Indian schools and their process in reforming Native American culture. My research will include the changes that took place in Native American culture due to Indian reformation schools and what types of effects these changes had on the population of Native Americans as a whole.

Development and Functional Significance of Private Speech in Children with Autism

Jennifer Naese, Jennifer Henchel, Kristy Barnes, Amanda Turner, Jode Paladino
Laura Berk

Psychology

In Vygotsky's sociocultural theory, private speech is the central means of transfer of culturally adaptive cognitive processes from the external, social plane to the internal, mental plane of functioning. Private speech plays a crucial role in children's acquisition of higher cognitive processes and in self-regulation of thought and behavior. In support of this view, previous research indicates that social and private speech are positively related (evidence for the social origins of private speech), that private speech increases under conditions of task difficulty (evidence for its self-regulating function), and that private speech abbreviates and becomes less audible with age and task mastery (evidence for its gradual internalization).

Although Vygotsky assumed that all children use private speech to guide their mental activity, controversy exists over whether individuals with autism are capable of such self-regulating language. According to Vygotsky (1934/1986), adult-child dialogues foster private speech even in children with severe social and linguistic deficits, although such children may display an altered course of private speech development. In contrast, Tomasello et al. (1993) argues that profound deficits in joint attention and perspective taking among children with autism interfere with their capacity to engage in cultural learning and, therefore, in private speech.

To examine these alternative predictions, 16 children (age range 8 to 16 years, M verbal ability = 73) with a clinical diagnosis of autism spectrum disorder (ASD) were observed at home while completing language-arts and math schoolwork assignments. Four sessions were gathered on each child, for a total of 40 minutes of observation, with speech, attention, and task-related behaviors coded using a time sampling procedure.

Preliminary results indicate that during challenging problem solving, children with ASD use high rates of task-relevant, externalized private speech, with such speech showing little evidence of internalization across the age range investigated. Social and private speech were strongly correlated, suggesting that the private speech of children with ASD derives from social experience. While engaged in academic tasks, no child displayed task-irrelevant, ecolalic speech or affect expression—nonsocial utterances assumed to be typical of the disorder.

Findings challenge the view that children with ASD have limited capacity for engaging in self-regulating private speech. At the same time, participants displayed a substantially delayed course of private speech development, and questions remain about extent to which they eventually internalize self-regulating language. The relationship of private speech to task-related behavior and attention during problem solving is currently being explored.

Remembering Block by Block: Developmental Changes in Young Children's Use of Relative Distance When Remembering and Communicating About Locations.

Amber Narolesski, Nicole Bush
Alycia Hund

Psychology

As we go through development the way we remember locations of objects relative to landmarks changes. Young children often understand distance in absolute terms (i.e., the metric distance between two locations). Later, the ability to use relative distance (i.e., comparisons of the metric distance between multiple pairs of locations) in remembering locations becomes more prominent. This experiment investigated how young children and adults use absolute and relative distance information to make judgments about nearbyness. First, 3- and 4-year-old children and adults were asked to judge whether several blocks were by a landmark. The blocks were arranged so that their absolute and relative distances from the landmark varied. In the intervening condition, the inner and middle rings of blocks surrounded a landmark, whereas in the non-intervening condition, the middle and outer rings of blocks surrounded the landmark. In the second part of the study, the blocks were removed, and the participants were asked to place the blocks in their original location relative to the landmark. After the participants left, the placement of the blocks was recorded and compared to their original location. Preliminary results showed that older children and adults used the relative distance between objects and a landmark to inform their judgments of nearbyness. Four-year-olds and adults were more likely to judge objects at the same absolute distance as by the landmark when other objects did not intervene than when other objects intervened. The older children and adults also placed the blocks more accurately than did the younger children. These findings suggest that children's use of relative distance to make judgments of nearbyness increases during the preschool years. Moreover, the ability to remember locations improves across childhood.

Ensemble Versus Frequency Averages for a Random Scattering Medium*

Matthew Narter

Physics

Sunish Menon, Q. Su, Rainer Grobe

For system of randomly arranged plane-parallel dielectric layers with randomly varying index of refraction and width, we compare the reflection coefficient derived from the Maxwell equations with that of the Boltzmann theory [1-3]. For a strictly monochromatic field this coefficient is an oscillatory function of the laser frequency. We show how suitable frequency or ensemble averaging permits a comparison of the two theories [4]. The calculation of the usual Boltzmann scattering coefficient from microscopic parameters can be improved to permit a better agreement with the exact Maxwell data [5]. The frequency averaging in practice is much simpler to perform often times than the ensemble averaging. We would like to use this new result on the generator level to see if it is possible to get an improved theoretical equation of the Boltzmann equation.

* Supported by grants of the NSF, Research Corporation, Illinois State URG and Honors Program.

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- [4] S. Menon, Q. Su and R. Grobe, Phys. Rev. E 65, 051917 (2002).
- [5] S. Menon, Q. Su and R. Grobe, Phys. Rev. E 68, 0466141-8 (2003).

Development and Pilot Testing of a Web Based Version of the Farm Grain Hazard Assessment Tool

Kara Nelson

Agriculture

Doug Kingman

In a previous study by the PI, a systems approach was used to complete a hazard analysis of on-farm metal grain storage bins in order to develop and test a farm grain hazard assessment tool (FGHAT) that could predict the increased likelihood of an engulfment. One of four objectives of this project is to develop and pilot test a web-based version of the FGHAT. Specifically the objective is to: develop an interactive website that records user's responses to the assessment tool and provides the user with real-time risk assessment, identifies specific risky behaviors, and recommends preventative measures to reduce the risk of engulfment.

An interactive website will be programmed that will be located on an Illinois State web-server that will allow users to view and respond to the assessment tool. The assessment consists of a login that gives consent for the use of the data, optional questions about personal information such as name, education and farm size, and the assessment questions. Users will also be given the option of providing comments after the questions. The responses from the web-based assessment tool will be summarized separately, as control of "who" has provided responses to the tool (available to anyone on the web) and their actual grain handling responsibilities (whether or not they are a "real" farmer) may be impossible to control, at least during this initial testing. It is conceivable that future web-based data collection efforts with the tool might need to be password protected, to limit access to individuals selected by an appropriate protocol.

An Illinois State University statistical consultant will be utilized to guide the data analysis. The consultant will review the PI's statistical analysis and recommend additional suitable measures when necessary. The web based version of the farm grain hazard assessment tool will provide useful information that will be used to aid in better understanding grain engulfments.

Brew Me

Matthew Nelson

Geography-Geology

Jill Freund Thomas

The brewing industry as a whole contributes over 42,000 jobs and over \$21 billion in total revenue to the United States economy. The emergence of the micro-brewery has allowed this industry to thrive throughout the entire country. Through the use of maps and brewing industry statistics, this poster will illustrate the overall distribution of micro-breweries throughout the U. S.; and a comparison of each state's contribution to the overall economy. Given a sufficient amount of time, American brewed beers in micro-breweries should be able to take the place of similar imported beers.

Women in Prison

Nathan Noel

Communication

Jennifer Parker

The Los Angeles Times of December 16, 2004 reports that America's penal system has forced women to fit into "policies, practices, programs, and facilities designed mostly for violent men." With over 100,000 women currently serving sentences in a system that was not designed to meet their needs, that damages them while they are incarcerated, and that provides no hope of breaking the cycle of crime it is clearly time to end the mismanagement of female inmates in our prisons. While these women did commit crimes deserving incarceration, it is abhorrent that a nation claiming to function on a foundation of equal rights and opportunity for all is ignoring the needs of a quickly growing segment of the American populace. Because, as members of society, we play vital roles in the development of laws as voters and the enforcement of laws as jurors it is vital that we seek to rectify the status of female inmates in America's prisons. And if you need a more concrete reason to care, it is our tax dollars that are being mismanaged when it comes to dealing with female inmates. Therefore, in order to help the thousands of women in America's prisons we must first examine the many problems women face when in the prison system, next determine what is causing these undue hardships, and lastly develop ways to remove some of the obstacles facing female inmates.

Oxadiazinones as Chiral Auxiliaries: Synthesis of a Human T-cell Leukemia Virus (Type I) Protease Inhibitor

Raleigh Parrott II
Shawn Hitchcock

Chemistry

The Human T-Cell Leukemia Virus (HTLV-1) has infected approximately 20 million people worldwide, with 10% of the victims contracting the fatal form of adult T-cell Leukemia. The protease for the virus is believed to be similar to the HIV protease and thus can be inhibited to stop viral replication. However, only limited structural information is available for the HTLV-1 protease. An inhibitor can be synthesized for the HTLV-1 protease through a chiral auxiliary, in this instance an oxadiazinone.

Levels of Assertiveness in Males and Females

Jill Pierard, Noah Bugaj
Mark Comadena

Communication

In this study, men and women are compared on their scores of assertiveness in certain social situations. Men were predicted to have higher levels of assertiveness in various social situations. Questionnaires using survey questions from Lorr and More's study in 1980 were distributed nonrandomly to a convenience sample. The questionnaire consisted of a Likert Scale to collect the data. The results indicated that men do not display a higher level of assertiveness than women in certain social situations. It was also found that there was no significant difference in the levels of assertiveness found in men and women.

Fast Food Consumption and Weight Gain in College Students

Sarah Pierce, Lija Marzec, Jacquelyn Belletete, Carol Weis, Courtney Cullerton
Jean Memken

Family and Consumer Sciences

The purpose of this research was to examine the role of fast food consumption and weight gain in college students. Specifically, it was hypothesized that the more fast food a college student consumed, the more weight he/she gained. A convenience sample of 350 college students at Illinois State University completed the survey. Respondents were asked to answer questions related to their fast food consumption and weight gain, if any. A Chi-squared analysis was used to test the hypothesis. Implications of this study might be of possible use to FCS professionals in the field of Food Nutrition and Dietetics, college students, and the fast food industry.

The Effect of College Students' Living Environments on Study Habits and Grade Point Average

Maggie Porter, Jenna Smith, Katy Currier, Lucille Brown
Jean Memken

Family and Consumer Sciences

The purpose of this research was to compare the academic standing of college students and their study habits with the aesthetic quality of their living environment. Our hypothesis was that the aesthetic quality of a male or female college students' living environment will affect their study habits and grade point average. This research was taken from a convenience sample of 350 Illinois State University students. The data was collected by a survey. For this study, our independent variables include gender and the aesthetic quality of the persons living environment. The dependent variables include grade point average and academic effort. Chi-square was used to test the hypothesis. Those who might be interested in this study are Family Consumer Science Professionals, Interior Designers, Product Marketers, and college students.

Handedness and Perception of Hand-Held Tools

Paul Pratapas, Kim Varju, Amber Naroleski
Jeffrey Wagman

Psychology

Previous research has indicated that individuals can perceive the properties of hand-held objects by wielding them. The current research investigates possible differences in this ability due to handedness. In Experiment 1, we compared how well participants felt they would be able to perform a hammering task with an object in their preferred hand with how well they felt they could perform the same task with the same object in their left hand. Not surprisingly, preliminary results indicate that participants felt that they could perform a hammering task better with an object in their preferred hand than with the same object in their non-preferred hand. In Experiment 2, we compared where participants chose to grasp an object to be used in a hammering task in their preferred hand with where they chose to grasp the same object in their non-preferred hand. Preliminary results indicate that participants tended to "choke up" (grasp the object further from the bottom) both when performing a precision hammering task (with either hand) and when using their non-preferred hand (to perform any hammering task). The results illustrate a subtle influence of handedness in perceiving properties of wielded objects.

Asymmetric Synthesis With 3,4,5,6-Tetrahydro-2H-1,3,4-oxadiazin-2-one: Efforts Toward Developing New Methods of Deacylation of Oxadiazinones

Daniel Richmond
Shawn Hitchcock

Chemistry

The evolution of chiral auxiliaries over the last thirty years has yielded an incredibly diverse array of asymmetric templates for preparing enantiomerically enriched materials. Oxazolidinones have been central in the development of chiral auxiliaries because of their successful application in a wide variety of reactions, among which the asymmetric aldol reaction has attracted the most attention. Hitchcock and coworkers disclosed their efforts in developing 3,4,5,6-tetrahydro-2H-1,3,4-oxadiazin-2-ones (oxadiazinones) as viable templates for asymmetric syntheses. When synthesized from enantiomerically pure (1R,2S)-ephedrine, these oxadiazinones have been modestly successful in the asymmetric aldol reaction. This research presentation will focus on the use of the related (1R,2S)-norephedrine as a source of molecular chirality. Specifically, norephedrine will be used as asymmetric template to create a N4-phenyloxadiazinone that is expected to have chemical properties that are very different from the parent oxadiazinones derived from ephedrine.

Dead Malls

Doug Rohrer
Jennifer Parker

Communication

My specific purpose is to inform my peers on the problems of dead malls. Especially about the ways and ideas behind dead malls, and what other communities have done to deal with the dead mall. Do you litter on an everyday basis? Do you think of the other things in today's society that are also littering all of America? According to the website that is updated monthly, www.reclaimdemocracy.org, "nationwide half a billion square feet of retail space sits empty--the equivalent of about 4,000 shopping malls." In today's society, we need to learn about the ways our land is being polluted. Dead malls are a problem to us because they are taking up a lot of land and nothing is being done with the property. By doing a lot of research outside of class and also knowing a lot about the mall here in Normal, a listener would most likely find interesting what I'm about to talk about. Dead malls have created tons of vacant buildings across the United States. In this speech, we will examine what exactly dead malls are, then we'll break through the walls and see why dead malls are a problem, and finally we will review new ways people have created to prevent dead malls from future pollution.

Fish Are Just Bad

Viero Romero
Jennifer Parker

Communication

Around the world today, many fisheries are being established. However, these fisheries are destroying the world's ecosystems by taking space up in the ocean and polluting the waters with their technology. Also, some of these fish are dangerous to consume due to high levels of mercury content--especially that found in oily fish. Furthermore, some fish that are being caught currently can be found from the coast off Indonesia--fish that may have been consuming corpses of tsunami victims.

Bacterial Adherence and the Effects of Sonication

Courtney Ruth, Amanda Snow
Lori Woeste, Beverly Barham

Health Sciences

Bacteria play a pivotal role in the success or failure of intravenous catheter related therapies in current medical practice. If a bacterium is successful in establishing significant amounts of growth in the catheter tubing, many times the only course of treatment remaining is to remove the tubing to prevent any further complications from catheter related bacterial infections. Through a two step basic science approach, the time interval at which two morphologically different bacteria reached the point in their individual growth phase for attachment of significant numbers of colony forming units (CFUs) to the catheter tubing was determined. The CFUs were determined through the use of both semi-quantitative and quantitative standard culture techniques. Optimal time for attachment was determined to be one hour for both model organisms, *Pseudomonas aeruginosa* and *Staphylococcus epidermidis*. Data obtained demonstrates that bacterial adherence can be disrupted by means of sonication. A two minute time interval of sonication has been identified where bacterial attachment is interrupted. This information can add to the body of knowledge that could improve current diagnostic strategies in catheter related infections and possibly help lower the associated mortality and morbidity rates.

Depression and Social Stigma: Biomedicine versus Ethnomedicine

Jennifer Satchwell
James Stanlaw, Lori Fitton

Sociology and Anthropology

In this paper I will argue that the degree of social stigmatization a person with depression suffers worldwide correlates with the predominant, that is either a biomedical or ethnomedical, attitude toward the treatment of mental illness. It has been claimed (Kleinman 1986) that practitioners of traditional Chinese medicine, an ethnomedical approach, experience similar, if not higher, rates of social stigma attached to mental illness than those in the United States, which focuses on biomedicine. The main focus of this research is in comparing the common treatment practices and subsequent stigmatization of depression within the United States and traditional Chinese medicine. I will show that a biomedical approach to disease with its emphasis on defining ill health as a biological verses subjective experience increases the degree of stigmatization associated with depression. I demonstrate this correlation with data from the electronic Human Area Relation's File, and I support this claim with data comparing ethnographic information regarding stigmatization and depression among users of western psychiatric practices and traditional Chinese medicine. As depression becomes an increasingly prevalent mental illness worldwide, this paper offers a useful comparison of the methods best used to treat people cross culturally.

Complimentary Currency: Non-Market Economies

Kyle Schultz
Jennifer Parker

Communication

At the age of 44, civil rights attorney Edgar Cahn suffered a massive and debilitating heart attack. His experience with disability inspired him to create a new economic system, one which inherently values all people. He called his system a Time Bank and it is one of more than 7,000 complimentary currency systems to pop up across the U.S. over the past decade. It is important to explore the economic implications of the future implementation of these types of systems.

Basketball and the Sport of Culture

Naushad Shakir
Jim Stanlaw, Wilbert Leonard

Sociology and Anthropology

In this research I will argue that basketball has expanded globally within the last 15 years due to a vast majority of players coming from Europe, Africa, South America, and Asia to the U.S.. These players are coming for an opportunity to earn an income and fulfill their dreams of coming to our country. Also, There are some players from the U.S. who couldn't fulfill their dreams in the NBA and decided to play overseas as well. It has been claimed (Wilcox, 2003) that sports plays a big role culturally for a person who is from overseas coming to the U.S.. Also, the sport provides an identity for the country's culture (Rowe, 2004). Most of the international players who come to the U.S. have had previous basketball experience in their country. For example, Yao Ming has had experience playing basketball in China for a few years playing with the Shanghai Sharks. Also, most of the international players who come to the NBA have had little or no college education, which is similar to the U.S. I will show that as more international players get drafted and come to the NBA, so are the chances of that sport increasing in demand and popularity as well. I will support this claim through books, magazine articles, and journals. This paper will offer a cross cultural comparison as to how other countries react to the game of basketball and admire it as well.

Synthesis and Characterization of 3-tertbutyl-5-methyl-1,2,4-triazole

Nathan Sieracki
Gregory Ferrence

Chemistry

Our research group has been examining the chemistry of the discrete Ln(II) hydride, [(TptBu,Me)Yb(2-H)]₂. The sterically demanding hydrotris(3-methyl-5-tert-butylpyrazolyl)borate ligand (TptBu,Me) provides the necessary environment to stabilize, isolate, and subsequently examine the chemistry of this unique divalent lanthanide hydride. Interestingly, other trispyrazolylborates providing the necessary requirements to stabilize a divalent lanthanide hydride have yet to be found. As such we were interested in preparing a triazole analogous to 3-methyl-5-tert-butylpyrazole in hope of being able to form a novel tristriazolylborate, namely the hydrotris(3-methyl-5-tert-butyltriazolyl) borate ligand HB(TztBu,Me)₃. Recently, this triazole was successfully prepared. This compound's synthesis and characterization will be presented in detail. This product will serve as a precursor in the synthesis of KHB(TztBu,Me)₃, a ligand system hitherto unknown. One synthesized, the metal coordination properties of this system can be investigated.

Establishing a Program to Train Teachers of the Deaf in Auditory/Oral Instruction

Katie Simon, Charity Hunter
Sharon Litchfield

Special Education

Establishing a Program to Train Teachers of the Deaf in Auditory/Oral Instruction is a qualitative research project designed to gain insight into a possible training program for teachers of the deaf. The literature review for this study reveals the desire and need for more training in auditory/oral instruction for teachers of the deaf. Opinions from stakeholders have been gathered to better understand the components of a successful training program. Focus groups have been conducted to collect qualitative data. The data have been analyzed to identify categories in the statements from the stakeholders. The focus group participants identified a successful training program as one that includes focus on current technology, basic aural rehabilitation skills, understanding of how hearing loss affects speech, skills for embedding listening and speaking into lessons, children with multiple needs, early child development, speech and language development, counseling parents, and a well rounded approach to deaf education.

Kinetic Studies of the Aqueous Reaction of Alpha-Hydroxyhippuric Acid Derivatives as a Function of pH and Buffer

Lesley Skelton
Richard Nagorski

Chemistry

Carbinolamides are useful compounds possessing a diverse spectrum of biological activity. It has been shown that carbinolamides are intermediates in the enzyme-catalyzed synthesis of alpha-amidated peptides. (Approximately 50% of all known mammalian peptide hormones possess a C-terminal alpha-amide function, which has been found to be essential for hormone activity.) Peptidylglycine alpha-amidating enzyme catalyzes the formation of these peptide hormones via the oxidation of the glycine extended precursor peptides to a carbinolamide intermediate. In a second active site, the carbinolamide is catalytically broken down into the alpha-amidated peptide and glyoxylate. Although carbinolamides are important intermediates in the production of these hormones, little attention has been given to their mechanisms of reaction in water, and, thus, it is difficult to speculate how their reaction is enzymatically catalyzed. The purpose of the work presented here was to synthesize structural analogs of the biological intermediates and study their mechanism of breakdown in water. alpha-Hydroxyhippuric acid (3), substrate for the enzyme, provides an easily modified template for the study of the breakdown of this carbinolamide system. By replacing the peptide portion of the enzymatic intermediate with various substituted benzene rings, we can evaluate the effect of varying electron demand on the mechanism of breakdown of carbinolamides to the amide and glyoxylate products as a function of pH. The pH-rate profiles for various aromatic substituted derivatives of 3 will be presented, and the mechanism of the acid, hydroxide and buffer catalyzed reactions discussed. The effect of the substituents on the pKa of the hydroxyl group and on the overall rates of reaction will also be evaluated.

Analyzing the United Nations' Use of the Term 'Genocide' as a Representative Anecdote

Michael Slefinger
Jennifer Parker

Communication

In 1948, the United Nations officially defined the global view of genocide, introducing a term that would forever alter the international consciousness. The term genocide is a powerful anecdotal label, as it represents tragic narratives of the most horrific degree. Since the Genocide Convention of 1948, four incidents have provoked the UN to identify a human rights crisis as genocide, and now, tragically, there is a fifth in the country of Sudan. You see, earlier this year, the United Nations agreed to help the people of the Darfur region of Sudan who were being systematically raped and killed by factions of the Sudanese government that had organized into rebel groups. The UN investigated the situation for nearly a month before helping. The UN initially deemed Sudan engulfed in a human rights crisis and sent in the corresponding aid package. However, months later the UN changed its mind, deeming Sudan was indeed experiencing genocide.

Since every time the UN declares genocide, the definition of the term is slightly altered, the recent discourse involving the Sudan crisis should be analyzed in order to examine how genocide can be a crime worthy of immediate action (and a word some are reluctant to use). Further, given that the UN valued the semantic debate over genocide so much that it lasted for nearly a month while the Sudanese waited for help, it is clear the term is critical to foreign policy and human lives. There is no better reason to ask the question, "How does the United Nations definition of the term 'genocide,' in light of the crisis in the Sudan, construct justification for foreign policy with the country?" To answer this question, we will employ Barry Brummet's article, "The Representative Anecdote as a Burkean Method, applied to Evangelical Rhetoric," published in The Southern Communication Journal, Fall 1984. This model is ideal because it outlines how to identify the motives of the speaker through the representative anecdotes they use. Therefore, we must first, break down Brummet's model, then apply it to the UN's use of the term genocide, before finally drawing some critical conclusions to see why the UN does or does not use this label.

Osmoregulation by the Embryos of the Euryhaline Killifish, *Fundulus Heteroclitus*

Lauren Sliga, Daniel Richmond, Michael Gille
Robert Preston, George Kidder, Christopher Petersen

Biological Sciences

The killifish, *Fundulus heteroclitus*, can live indefinitely in fresh water (FW) or seawater (SW) but spawns in estuaries of intermediate salinities (~10ppt or 300 mOsM). Ordinarily the embryos require about 14 days to develop and may be exposed to large changes in salinity due to periodic tidal inflow of SW and outflow of FW. Killifish embryos are also capable of normal development in air in moist environments. In general, teleost fish oocytes and embryos have low water permeability, however Guggino (Am. J. Physiol. 238: R36-R41, 1980) has shown killifish embryos are sufficiently water permeable that they must have osmoregulatory mechanisms to maintain normal volume. We tested the hypothesis that killifish embryos should show increased osmoregulatory capability compared to unfertilized oocytes. We used sedimentation pycnometry (SP) to measure oocyte and embryo density change which is an index of water gain or loss and RT-PCR to determine the changes in expression of mRNA for the Na/K-ATPase alpha 1a subunit (the "Na pump") and the chloride channel (CFTR, cystic fibrosis transmembrane regulator). The SP measurements show that embryos gain (in 10 mOsM medium) or lose (in 917 mOsM medium) less water relative to the isotonic condition (296 mOsM) compared with unfertilized oocytes. We also detected increased expression of mRNA of the Na/K-ATPase alpha 1a subunit and CFTR via RT-PCR in embryos compared with unfertilized oocytes. These results are consistent with the hypothesis that killifish embryos actively osmoregulate during development. (NSF 0111860)

Conductive Education

Kelly Smith
Jennifer Parker

Communication

Cerebral Palsy is a disorder that effects the way our brain controls our muscles. Individuals with Cerebral Palsy have little to no muscle control which results in many individuals losing the ability to walk, feed themselves, or speak. In the United States alone more than 10,000 babies a year are born with this debilitating disorder. Unfortunately these children's parents are told that rehabilitation of any degree is impossible. However, halfway around the world there is hope. Hope's name is the Peto Institute for Conductive Education, named after it's founder Dr. Andras Peto. The Institute has successfully changed the way most of the world views cerebral palsy treatment by employing non-traditional treatment methods that are both effective and controversial.

Illinois State College Students of Specific Households and Their Fast Food Eating Habits

Laurie Sommers, Erin Schmerschneider, Anthony Nevicosi
Jean Memken

Family and Consumer Sciences

The purpose of this research is to compare the fast food eating habits of college students raised in tradition, non-traditional, and part traditional, part non-traditional. It was hypothesized that college students from non-traditional families will eat out more often at fast food restaurants compared to traditional and part traditional, part non-traditional. It was also hypothesized that college students with high exposure to fast food as a child will eat at fast food restaurants more frequently than those students with low exposure to fast food as a child. A convenience sample of 350 Illinois State University students completed a survey related to fast food eating habits. Students were asked what type of household they grew up in, how frequently they ate fast food growing up, and how frequently they eat fast food now. Chi-square analysis was used to test the hypothesis. This research has major implications to nutrition educators, parents, and students as it pertains to the importance of, and the development of good eating habits.

Water Wars

Erin Spicer
Gina Bessa

Sociology and Anthropology

In this paper, I argue that future wars will be fought over the world's limited water supply. Water seems to be abundant because it covers three-fourths of the earth's surface, but in reality, only a very small fraction of that amount is drinkable. In fact, in countries all over the world, people drink, bath, wash, and dump waste into the same water source. In many areas, rivers are dammed to supply urban centers with water or electricity thereby reducing the water flow to communities downstream. I show that this problem is erupting into disputes over water resources between countries and communities. In particular I focus on war conflicts between Sudan, Ethiopia, and Egypt. Sudan and Ethiopia have placed dams along the Nile River leaving Egypt, which relies almost solely on the river for its water supply, without sufficient water resources. I examine this conflict from the standpoint of the local indigenous people, offering an anthropological perspective on this issue that has global implications. I support my argument with ethnographic monographs, policy statements, and newspaper items from these countries. As water becomes increasingly scarce around the world, this paper offers insight into the nature of conflicts to come.

Unique Cross-linking of Coproporphyrinogen Oxidase

Jason Stephenson

Chemistry

Marjorie Jones, Nancy Thomas, Jon Friesen

Coproporphyrinogen Oxidase (CO) is the sixth enzyme in the heme biosynthetic pathway. Heme is a very important molecule because it is the principle carrier of oxygen when bound to the globin protein. This enzyme catalyzes the conversion of coproporphyrinogen-III (C-III) to protoporphyrinogen-IX (P-IX). The structure of CO from *Saccharomyces cerevisiae* as depicted by x-ray crystallography appears to be a homodimer (Philips et al., 2004). To test if CO dimerizes in solution, two cross-linker molecules, BS3 and Sulfo-SMCC, were incubated with the enzyme. BS3 forms covalent adducts with primary amines within the protein. Sulfo-SMCC forms covalent adducts with primary amines and sulfhydryl groups of CO. Following incubation, with or without substrate, the reaction was evaluated by SDS-PAGE and assessing of enzymatic activity. The enzyme was active in the presence or absence of either cross-linker. The specific activity of the enzyme increased upon incubation with either cross-linker, suggesting stabilization of the dimeric form. The results of the SDS-PAGE analysis suggest that dimers of CO were formed, as well as trimers and tetramers. Therefore, these data support the x-ray crystallographic structure of model of dimeric coproporphyrinogen oxidase being the active form in solution.

Environmentally Determined Captive Great Ape Behavior: A Comparative Study of Ape Habitats and Associated Behavior

Eric Stone

Sociology and Anthropology

James Stanlaw, Nickels Martin

In this paper I argue that great ape behavior in captivity is greatly determined by the type of habitat and environmental enrichment provided by zoological parks. A shift in zoological thought over the past twenty years has led to the construction of more naturalistic habitats. However, due to surrounding environmental limitations and monetary restrictions, many zoological parks still are forced to restrict ape habitats to unnatural, cage-like structures. I will show that these non-natural habitats lead to very different behavior not found in either the wild or in more naturalistic zoo habitats. I will posit that the reason for these differences is the advanced nature of the apes' cognitive ability, which permits behavioral adaptations to new situations and requires regular stimulation from environmental and habitat variations. This claim is supported empirically through personal research done at major zoological parks throughout the eastern United States and western Europe. Behavior was observed and recorded on digital film, while other information was gathered through interviews with the zoological parks' primate keepers and staff. This study includes zoological parks that encompass a variety of environments, allowing for a distinct comparison of different ecological habitats and correlated behavior. As these zoological parks constantly change and upgrade to improve the habitats of the apes, this study offers a unique insight and comparison into how the zoological parks' environments and these changes affect the behaviors of the apes.

Social Deficits of Children with High-Functioning Autism and Asperger Syndrome: An Assessment of Social Interaction, Stimulus Overselectivity, Theory of Mind, and Anxiety

Jennifer Sullivan, Kimberly Williamson, Lindsey Bachner, Amanda Kurtenbach

Psychology

Karla Doepke

Children with autism and Asperger Syndrome often suffer social deficits interfering with the formation of friendships. Despite the fact that social skills are a core deficit for these children, little has been done to quantify the abilities and needs in this area. Prior research suggests that anxiety, difficulties understanding theory of mind and deficits in interpretation of multiple cues may contribute to overall social skills difficulties in these children. This study examines the social abilities of children diagnosed with Autism or Asperger Syndrome and possible underlying factors that contribute to deficiencies in these areas. Specifically, assessments of social skills, anxiety, theory of mind, and interpretation of multiple cues were given. Results are discussed in terms of correlations between different factors, general trends, and individual differences.

Gender Differences in Attitudes Toward Violence in Adolescent Dating Relationships

Lisa Sweas

Psychology

Marla Reese-Weber

The purpose of this study was to examine gender differences in attitudes, definitions, and perpetration of violence among adolescents in dating relationships. Approximately 120 local high school students participated in the study. Participants completed written measures to assess social desirability and acceptance, perpetration, and perceptions of dating violence. Participants also completed a video measure to assess definitions, acceptance, and tolerance of dating violence. It is expected that this study will yield several important findings: the video which depicts a female perpetrator will be judged as less violent than the video that depicts a male perpetrator; female respondents will define aggression as more violent than male respondents; and males exhibit more violent behavior in their dating relationships than females.

Detection of Ions and Reactive Atoms in a Flowing Helium Afterglow

David Sweeney
George Rutherford

Physics

Helium is generally considered one of the most inert elements in the universe. However, if sufficient energy is given to one of the helium atom's electrons, the atom can sometimes be stabilized in a long-lived excited state with very large electronic stored energy. Helium atoms in these excited states, sometimes called metastable atoms, are almost as reactive in slow collisions with other atoms or molecules as are the alkali metals. In fact, a helium metastable atom can use its stored electronic energy to ionize any other species (neon is the sole exception) in a slow collision. This process is called Penning ionization and is an important source of charged particles in weak discharge plasmas such as gas lasers, semiconductor processing plasmas, and plasma-based lighting sources. An understanding of this and related processes is important as both a basic research topic and as an aid to advances in these technologies.

Our lab studies metastable atom reactions in a flowing helium afterglow. High purity helium flows into a 10 cm diameter glass flowtube and is evacuated with a high speed vacuum pump. The gas enters the flowtube through a small glass nozzle placed at the center of a microwave cavity. Microwave power is used to ignite a steady discharge in the nozzle, creating charged particles and, as the gas moves out of the active discharge region, metastable atoms. These metastable atoms are allowed to interact via slow collisions with both solid and gas targets. The electrons ejected in the Penning ionization events are detected by measuring the current to electrodes placed in the flow. Metastable atoms that strike the electrodes can be detected in much the same way. In this presentation we report preliminary efforts to use such methods to determine the kinds of ions present in the flow (whether electrons or heavier ions, and whether fast or slow, for example). We also report preliminary data designed to provide a robust measurement of gas phase Penning ionization reaction rate constants. Finally, we describe pulsed velocity measurements and their possible interpretation as

Therapeutic Vaccines: The Use of Cellular Immunity Response to Combat HIV

Sara Talbott
Jennifer Parker

Communication

Nearly 3 years ago at the 14th International Conference on HIV/AIDS in Barcelona, a tense debate was underway regarding of the feasibility of developing an AIDS vaccine for treatment of the disease. Tim Pickstone, Deputy Director and a delegate at the conference stated on his on his company's website georgehoustrust.org.uk on January 24, 2005 that current developments do nothing for people who are already living with HIV. The focus is on preventative, not therapeutic vaccines, and people already affected are being left out of the current vaccine development and trial process. Finding a vaccination that works for those with HIV while also protecting the population has been a struggle. And, the problem is only getting worse. The Washington Post of January 15, 2005 reports that 39.4 million people are now living with HIV with 14,000 new infections daily and 3 million fatalities a year worldwide. While this pandemic continues to grow, a new study has emerged claiming success in favor of a recent development of a therapeutic vaccine that benefits everyone. The Agance France Press of November 23, 2004 announced that French researchers from the Institute of Research for Vaccines and Immuno-therapies have discovered a new way to treat HIV with such a success rate that it benefits everyone, infected or not. The therapeutic vaccine is based off of a cellular immune reaction, or the intended manipulation of the immune system. A study conducted on 18 volunteers with HIV showed incredible rates of immunity, but not complete. Therefore, this vaccine is not a cure for HIV but a beneficial factor in the fight against the AIDS pandemic. In order to better understand this recent development and its possible future in our world community, we will first break down the study and how the vaccine works, then we will see how it applies to those infected with HIV before finally drawing some implications, both positive and negative.

Changes in Within-Session Contrast: Does exposure to a DA agonist or antagonist alter habituation?

Michelle Toelle, Rachel Knight, Sessa Chandrashekar
Valeri Farmer-Dougan

Psychology

Multiple schedule behavioral contrast is an inverse relationship between the rate of responding in one component of a multiple schedule and the conditions of reinforcement in the other component (McSweeney and Weatherly, 1998). Positive contrast is said to occur when an increase in responding during occurs in the constant (contrast) component when the conditions of the other (variable) component worsen. McSweeney & Swindall (1999) suggest that within-session changes in operant responses occur because subjects sensitize and thus habituate to the reinforcer. Changes in reinforcer value, size or rate within a session may alter habituation, and thus increase or decrease responding. This change in responding may account for the contrast effect. If this is true, than drugs which alter the arousal state of the animal should increase or decrease sensitization to the reinforcer, and thus either attenuate or intensify the contrast effect. This is the focus of the present set of experiments. The experiments manipulated arousal using a general dopamine agonist of ephedra+caffeine, and a dopamine D2-antagonist, haloperidol. As expected, differential effects on within session responding were found

The Frozen Ark

Tina Vo
Jennifer Parker

Communication

As the list of endangered species continues to grow at a rapid rate, the need to preserve becomes pressing. Therefore it is imperative that we explore all aspects that could continue the knowledge that these endangered species hold in their genes. The Frozen Ark is a new innovation that is trying to perpetuate this knowledge into the future, as such it is imperative that we first look at what the Frozen Ark is and how it works, then at the applications it has, and finally delve into implications it could yield.

Tools of Influence and Persuasion: A Comparative Study of American and German War Propaganda Tactics

Joshua Ware
Jim Stanlaw

Sociology and Anthropology

In this paper I will argue that 21st century American war propaganda and World War II era German war propaganda used similar linguistic and artistic styles to create social environments of fear and anxiety among the public to gain pre-emptive war support. World War II German war propaganda has been closely analyzed over the last half century, while American techniques have just recently attracted new public and political critiques. September 11th and the events that have developed since with the "War on Terrorism" have caused never before asked questions to come into light regarding all forms of public persuasion and their agendas. I will examine what tactics have been used in 21st century American war propaganda and how similar they are to those used in German war propaganda. I will demonstrate the similarities and differences with data from previous and current anthropological, historical and sociological propaganda studies I will support this claim with the evidence that we already have compiled from historical analyses as well as journal and newspaper articles, books, speeches, posters, flyers, film material, and photographs. I will suggest that we can observe the similarities and differences between the two different countries and eras because of their similar goal; manipulating public opinion through creating a particular social climate to persuade political, social, and economic ideas. This paper offers an interesting comparison between two of the most well known producers of war propaganda and will seek to show a similarity in war propaganda tactics.

Using an Expert System to Address Self-Checkout Problems at a Point of Sales System

Marcus Washington, Jerjuan Lawson
Matthew Kuofie

Information Technology

Self-checkout terminals or Point-of-Sales (POS) terminal, are the latest attempt by big businesses in the effort to eliminate the traditional middleman. But their effort have also recreated many problems that slow down ordinary transactions. One of the problems is that POS terminal printers frequently run out of paper. The self-checkout terminal occasionally have a hard time scanning products, resulting in human attendants having to manually type in the product identification number. We have developed a Point-of-Sales (POS) Expert System methodology that will handle some of the problems present in the current systems. Our methodology focuses on the following points:

- 1) Increased inventory tracking management.
- 2) A uniform approach to determining and handling of errors at point of sales terminals.
- 3) Decrease the amount of time required to complete transactions from start to finish.
- 4) Provide a cost effective and efficient solution to Point-of-Sales terminals by eliminating all human attendants

The benefits of your methodology includes 1) enhancing customer satisfaction when using these systems, 2) increase customer satisfaction, 3) eliminating completely the human cashier support, and 4) increasing profit.

Difference Between Apparel Majors and Other Major's Spending Habits

Michelle Wass, Kylie Hahn, Jill Donohue
Jean Memken

Family and Consumer Sciences

The purpose of this research is to compare Apparel Merchandising and Design (AMD) female students' spending habits on apparel/accessories with the spending habits of other female majors. We hypothesize that on average, AMD female majors spend more money on apparel/accessories than other female majors do. A convenience sample of 350 Illinois State University students completed a survey related to the comparison between FCS spending habits and the spending habits of other majors. They were surveyed and asked their major as well as how much money they spend on apparel/accessories per week. Chi Square analysis was used to test this

States That Love Their College Basketball

Nicholas Watson
Jill Freund Thomas

Geography-Geology

With over 300 Division I schools, men's college basketball is a favorite to millions of Americans. That poses the question; which state loves their college basketball the most, and what factors cause the attendance to rise or fall? Over the past few years the average attendance for men's basketball games has risen. This poster looks at factors which may impact the increase attendance of basketball games at the state level. Factors such as: the number of team wins per state, team prestige such as championships and tournament appearances, regional weather, power schools vs. small schools, and stadium size. The 2003 and 2004 season statistics will be used as

Relationship Between Illinois State University Students' Living Environments/Social Habits and Study Habits

Jaclynn Webb, Betsy McDonald, Tiffany Dirksmeyer, Jamie Thompson, Callie Prevo
Jean Memken

Family and Consumer Sciences

The purpose of this research was to observe the relationship between Illinois State University students' living environments and their study habits. Several hypothesis were formed in order to conduct this survey. They are as following. A student's study habits are affected by their living accommodations. A student's social habits also have an impact on their study habits. The number of hours of class a student takes influences the amount of time they study, and where and when they study. Data was collected by surveys distributed to 350 Illinois State University students. A convenience sample was decided on and a survey, made up of consistent and specific questions were given to this sample group. The statistic that was used was Chi-Square. The information gathered from this study is beneficial to college students, college professors and academic advisors.

The Brass Pole

Benjamin Wilson
Jill Freund-Thomas

Geography-Geology

The adult entertainment industry is as old as time. One facet of this industry is the ever popular gentlemen's club. Gentlemen's clubs are located throughout Illinois, but this project will focus on Illinois south of I-80. Why are they located where they are? This poster will show the impact to interstate highways and state routes have on the proximity of gentlemen's clubs. It is my assumption that gentlemen's clubs are more likely to be located along well traveled routes.

Process Controls System as Applied to A Self-Contained Soda Fountain

Brandon Windham
Terry Foster

Technology

This project will examine the steps necessary for remote process control and real-time web interfacing to the process control. The project will be based around a self-contained soda fountain built for use in a small apartment. The PLC (Programmable Logic Controller) in use will be a Taylor Instruments MODCell. This is a very powerful unit, limited only by the user interface. A SCADA (Supervisory Control and Data Acquisition) program known as Citect will replace the archaic user interface. This program allows real-time output to the user, and in some cases, input for control from the user. The system resembles a visual basic program when completed, but SCADA allows for much more interaction with the MODBus language, which will be used to program the PLC. The input/output aspects of the system will be completed with the use of RTDs (resistance temperature detector), thermocouples, contact switches, and an ultrasonic level indicator. This all seems very confusing – That is why it will be an interesting presentation and will provide value both to the parties involved in the project and to those who view the end product. When put together, the system will control temperature and flow, and will record certain data such as: amount of soda used, dangerous temperatures reached, and even waste tank level with alarms.

The Effect of Flaxseed on Palatability of Banana Muffins as a Tool for Reducing Low Density Lipoprotein Serum Levels in

Sharon Windsor, Stacy Uphoff, Katy Lacio, Michelle Thomas, Ashleigh Wheat
Nweze Nnakwe

Family and Consumer Sciences

Flaxseed has recently gained attention in the area of lowering the risk for cardiovascular disease because of its rich sources in lignans, fiber, and omega-3 fatty acids. Heart disease has been linked to a number of factors such as: high low density lipoprotein cholesterol, and high blood pressure. The objective of this study was to determine the acceptability of a banana muffin containing milled flaxseed. Physical testing involved the use of a wettability test that measured density and a penetrometer test that measured tenderness and hardness. Subjective testing involved the use of difference testing with the use of a scorecard and preference testing with the use of a hedonic rating scale. Participants of the study were 21 dietitians from OSF Medical Center in Peoria, Illinois and 49 female students from Illinois State University. The difference test was used for the dietitians and the preference test was used for ISU students. All of the participants sampled three different experimental banana muffins: a control (0 grams flaxseed and 118 ml butter), and experimental one muffin with 88.5 grams flaxseed and 89 ml butter, and experimental two muffin with 170.45 grams flaxseed and 59 ml butter. When the OSF dietitians tested the two experimental samples for flavor, experiment 1 (88.5 gm of flaxseed) was more acceptable and was statistically significant at $P < 0.014$. When the same samples were tested using ISU students, the control sample was more acceptable compared to the experimental samples for all the sensory characteristics measured and was statistically significant at $P < 0.000$. Results from the OSF dietitians and the ISU students were similar and both found the control sample more acceptable. The information in this study showed that adding flaxseed to a banana muffin enhances the health benefits while maintaining palatability if used in moderate proportions.

Environmental Influence on Shamanistic Practice

Jeffrey Wituk
Elizabeth Scott

Sociology and Anthropology

Did environment influence the practices of shamanism in Native American groups? I describe shamanism in four Native groups located in the western hemisphere: the Inuit, Zuni, Shoshoni, and Bororo. The four groups will be located in different environmental regions. The regions I chose to focus on are arctic, desert, prairie grassland, and tropical rainforest. I describe the importance and utilization of shamanism in each of the culture's religious and social lifestyles. I also highlight the similarities and differences in the elements of shamanic tradition, methods, techniques, myths, and theories used by the shaman. After noting the similarities and differences among each of the culture's shamanistic practices, I identify environmental factors, such as climate, or resource access, that may have had an effect on the degree to which shamanism impacted each of the culture's social and religious life.

Effects of Issue Involvement on Naïve Realism

Josh Wondra, Jamie Hughes
Glenn Reeder

Psychology

The present study seeks to understand what factors contribute to naïve realism. Naïve realism is defined as the tendency for a person to 1) believe his/her perceptions of the world are objective and unbiased, 2) believe that other rational persons receiving the same information will share his/her perceptions, and 3) that persons who do not perceive events in a similar manner or agree with one's interpretation are ignorant, lazy, irrational or biased by ideology or self interest. In particular, we seek to determine if there is a relationship between naïve realism and issue involvement. We hypothesize that individuals who are highly involved in an issue will exhibit greater naïve realism toward those who disagree with their opinion. The study will contain eight conditions in which research participants will be exposed to a high issue involvement manipulation or a low issue involvement manipulation, on one of two attitude issues, and will make judgments about persons who either support or oppose the given issue. Participants will also indicate their own attitude on that issue. Naïve realism will be indicated if participants attribute negative bias to those who hold an attitude that is dissimilar from their own. We predict that such a tendency will be strongest among those in the high issue involvement condition. Understanding what leads to stronger attribution of negative bias is important for business and political negotiations, as well as in daily social interactions, discussions, and debates.

Sexual Abuse Within the United States Military

Katelyn Wood
Jennifer Parker

Communication

The August 7, 2004 Washington Wire notes that "In the past 18 months there have been nearly 110 cases of sexual misconduct within the military in Iraq, Kuwait, and Afghanistan alone." Sexual abuse runs rampant through the United States Military, and exists as a culture which promotes and breeds sexual violence. And this culture continues to spiral out of control as the Army Reports and Records note on June 3, 2004 that "sexual crimes committed by military members against fellow personell have increased 25% in the last five years alone." The crisis of sexual violence in our armed forces must be addressed before crime rates climb any higher, and as author and military rape victim Terri Sphar Nelson states, "simply because justice demands it." Sexual violence is an incredibly sensitive subject, but to have an open mind and make tough decisions about America's attitudes towards the armed forces, one must first examine the problem of sexual abuse in the United States military, second become educated on the culture that causes such out of control sexual violence, in order to address some much needed solutions.

A Rhetorical Criticism of Claus Von Stauffenberg's Anniversary as Tool of Social Change

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Communication

To combat the new wave of anti-Semitism occurring in Europe, German institutions have used the sixtieth anniversary of, Nazi colonel, Count Claus Von Stauffenberg's attempt to assassinate Adolf Hitler, as a means to highlight a heroic template for tolerance. While potentially powerful, there are also some potential rhetorical implications. With both governmental and religious institutions using an attempted murderer as a model of citizen behavior some ethical problems could interfere with effectiveness of the rhetoric. As a framework, Robert E. Terrill's article Put on a Happy Face: Batman as a Schizophrenic Hero, was used as a method with which to analyze the effectiveness of Von Stauffenberg's anniversary, as a catalyst for tolerance. The analysis of the anniversary examines the psyche of the city, manifestation of archetypes, and failure of the integration to explain how a violent hero can still be accepted by society. The analysis discovered that rhetorical power had been created by German institutions, but would be very difficult to control by such institutions, because of the direct support given by established institutions, to an attempted murderer, indirectly advocates violence as a form of justice.

On Gamma-Labelings of Some Infinite Families of Almost-Bipartite Graphs II

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Mathematics

In 1965, Alex Rosa introduced several types of graph labelings as means of attacking the problem of finding cyclic graph decompositions of complete graphs. Rosa showed that if a graph G with n edges admitted certain kinds of labelings (rho-, sigma- or beta-), then G cyclically decomposes the complete graph on $2n+1$ vertices. Moreover, if G is bipartite and if it admits a restrictive labelling, called an alpha-labeling, then G cyclically decomposes the complete graph on $2nx+1$ vertices for every positive integer x (thus G divides an infinite family of complete graphs, rather than just one). A new labeling that yields the same decomposition outcome as alpha-labelings was recently introduced for graphs that are not necessarily bipartite. Blinco, El-Zanati and Vanden Eynden showed that if an almost-bipartite graph G with n edges admitted what they call a gamma-labeling, then G cyclically decomposes the complete graph on $2nx+1$ vertices for every positive integer x . A non-bipartite G graph is almost-bipartite if it contains an edge whose removal makes G bipartite. As part of our project in MAT 289.23, our class is searching for infinite families of almost bipartite graphs that admit gamma-labelings.

Perceptions of Parents of Children with Autism Spectrum Disorder: One Family's Story

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Special Education

In today's schools, the number of children with Autism Spectrum Disorder (ASD) is increasing. The Individuals with Disabilities Education Act (IDEA) requires that families are involved with their children's education. Therefore, it is critical for education professionals to know and to understand not only how ASD affects children, but how it affects their families. The focus of this study was to investigate the perceptions of parents of children with ASD regarding their child's educational experience. This study used qualitative methodology to analyze interviews with a married couple who are the parents of a young child with ASD. Data was analyzed line-by-line. Categories were developed using the constant comparative method. Major themes included the importance of self-education, the benefit of parent support groups, and specific perceptions of the school, teachers, and teacher assistants. Additional findings concerning parental concerns and strategies used with their child are presented.