

2004 ABSTRACTS

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The Valpo CORE Reader

The Valpo CORE Reader features some of the best writing done from the previous year, highlights models of the kinds of writing students will be doing in the current year, and perhaps most importantly, invites additional ways of thinking about our texts.

The idea of research is closely related to one of the best aspects of a portfolio writing course--its emphasis on revision. Revision, like research, implies work over time, and most of time, "seeing again" and "searching again" takes place through dialogues with others. One of the larger papers which involves both re-searching and re-visioning is the "worker profile," an ambitious paper in the second semester involving interviews and contextual framing.

You might notice that many of these essays address the idea of vocation or calling in the lives of the authors or their subjects. It is intentional. We have been given permission to devote some serious thinking about the spiritual world of vocation and how first year students think about their place in that world. We are grateful to participate in the Celebration of Undergraduate Scholarship.

Contributing Authors: Matt Baer, Joy Bowker, Keriann Conley, Alison Harvey, Steve Hlady, Britt King, Brit Nelson, Emily Hollingsworth, Matthew Glomski, Kristin Mueller, Chelsea Oxtan, Matt Preuss, Whitney Wittorf

How an Audience Defines Reputation: A Comparative Study Examining Public Relations for Politicians and Entertainers

Alison Ade, Kristin Small

Departmental Affiliation: Communication, College of Arts & Sciences

Politicians and entertainers serve two very different purposes in our society; however, both are honored as celebrities by their respective audiences. Experts in the field of public relations claim that one's audience defines one's reputation. (Doynes 2003) Extensive research has been conducted on the challenges that public relations practitioners face when managing the reputation of a celebrity client who is involved in a crisis, how this changes with politicians and entertainers, and what happens when these two professions meet. The results suggest that in either instance, there are definite steps that must be taken early on in a crisis in order to lay the groundwork for rapid image recovery. In addition, in their respective fields, the differences between actor and musician, as well as the differences between democrat and republican, greatly influence the way in which the crisis must be dealt with. The reason for this difference in crisis management is directly correlated with the differences among the core audiences.

Information about the Authors: Kristin Small and Alison Ade are public relations majors.

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An Intercultural Comparison of Sports in Two Cultures

Ali Al-Ameri, Anthony Mytas

The research compares and contrasts the role of sports in different cultures and how culture influences the popularity of sports in these cultures. Specifically, the United States and the United Arab Emirates are examined for the treatment of sports by the public relations efforts. By taking two sports with varying popularity, the origin of sports in any culture influences how that sport is treated. Sports always had the ability to connect with other cultures. Every four years, the Olympics brings together different races, religions, and cultures to compete in the spirit of friendly competition. The two sports played in the Olympic games, basketball and soccer, demonstrate such cultural principles. As part of the cultural aspect, the role of women in each culture and how that affects their participation in sports and how that may help to lead to the more equality is examined. Secondly, how does the age that a sport is introduced during a lifetime determine its popularity both immediately and in the future? Is participation in the sport mandatory to make that same connection? Such cultural differences, gender and age, often determines the role of sport in society.

Information about the Authors: Tony Mytas is from the United States. Ali Al-Ameri is from the United Arab Emirates.

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Primary Education in Zhejiang Province

Erin Arndt

Departmental Affiliation: East Asian Studies, Christ College

This paper will be the result of a field study to be conducted in China over two weeks in March, 2004. The goal is to examine urban bias in China by comparing two elementary schools, one rural and one urban, and to discover differences in the level of quality through surveys, interviews, and observations. The paper will evaluate the quality of the education the children are receiving and determine whether there does appear to be any bias through means such as curriculum, facilities and resources available, quality of administration and teaching staff, and student/parent opinion, among other indicators.

Information about the Authors: I am a Chemistry and German double major enrolled in Christ College. My ties to elementary education are of an informal nature: I teach German to kindergarten through fifth graders in the Kinder-Lernen-Deutsch program here at Valparaiso University. I enjoy working with children and think that elementary education is very important for a child's development. As such, I hope to find positive results in China that will influence and benefit my own work with children.

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Battling Incontinence With Prompted Voiding

Jennifer Asteris, Jennifer Byroad, Jason Combs, Angela DeGaetano, Carol Franz, Denise Harley, and Kimberley Jelinek

Departmental Affiliation: Nursing, College of Nursing

Office of Sponsored and Undergraduate Research - Valparaiso University
Incontinence, the inability to control bladder and bowel functions, can be a common problem for older adults. This problem can be compounded for nursing home residents. Incontinence leads to infection, decreased self-esteem, falls, skin breakdown, and the time and money required to address this issue.

This nursing research utilization research project investigated the most effective toileting program for incontinent patients in a long-term care facility.

Searches of CINAHL, ProQuest, Nursing Journals Full-Text, MedLine and the National Guideline Clearing House were included. Searches, limited to peer reviewed, research journal articles dating from 1999 to present, used the terms urinary incontinence, prompted voiding, and incontinence in long-term care. A grid summarized eight studies involving outcomes such as cost, types of incontinence programs, professional care requirements, and emotional and physical effects of incontinence on the elderly.

Synthesis of the findings demonstrated prompted voiding (PV) enhanced quality of life at the expense of increased costs. Findings indicated that evidence-based nursing practice should include the implementation of PV. A practice policy was designed and guidelines for implementation of PV were proposed for a long-term care facility.

Although initial costs seem greater, PV reduces secondary costs related to skin breakdown and falls, while improving self-esteem.

Information about the Authors: This nursing research utilization group is composed of traditional and accelerated students from the College of Nursing. We are dedicated nursing students who apply the knowledge we have learned at VU, to make our community and profession a better place. We are committed to excellence in our field and strive to reach better health outcomes by focusing on the community, family, and individual.

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Effects of Pressure on the Fluorescence of the Biologically Significant Proteins
Human Serum Albumin And Ferritin

Elizabeth Baden

Departmental Affiliation: Chemistry Department, College of Arts and Sciences

Pressure is used as a comparatively gentle method of denaturation to study the equilibrium of proteins. The aims of this study were to determine the effects of applied pressure on human serum albumin (HuSA) and ferritin using fluorescence spectroscopy techniques. HuSA is the main transport protein in the human body. The HuSA was coupled with a fluorescent molecular probe that fluoresces strongly when bound to the protein. The results showed that HuSA unfolded as pressure increased and folded reversibly as pressure was released. Lower temperatures caused HuSA to unfold more than high temperatures. Calculations of Gibbs= free energy indicated that as pressure increased, the binding of HuSA became less favorable. Ferritin is the iron storage protein that regulates iron metabolism in the body. The fluorescence of the molecular probe Phen Green is quenched in the presence of iron(II) and iron(III) ions; thus, movement of iron into and out of ferritin were monitored based on the fluorescence intensity of Phen Green. When Phen Green and ferritin were combined, the Phen Green fluorescence was quenched

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as pressure was applied due to the release of iron from ferritin. As pressure was released, the fluorescence intensity increased, indicating that the ferritin was binding the iron once again.

Information about the Author: I am a senior biochemistry major, and I began working on this project two summers ago, with Dr. Michael Bradley. Janna Erlie, a fellow student, began the project with HuSA, and I continued her work. For my senior honors project, I decided to use the same tools, pressure and fluorescence, to investigate ferritin, another biologically significant protein. My future goals are to earn a Ph.D. in biochemistry and to do biomedical research.

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Rolling Ball Sculpture

Annie Bader, Andree Houle, Eric Petran, Mike Skibbe, Matt Wilke

Departmental Affiliation: Team Time Emit, College of Arts and Sciences

This is a senior design project for Electrical and Mechanical Engineers. Its goal is to build a rolling ball sculpture and clock to be displayed in the lobby of Gellersen Engineering Center.

Information about the Authors: Mike Skibbe, Andree Houle, and Annie Bader are senior Mechanical Engineering students at Valpo. Eric Petran and Matt Wilke are senior Electrical Engineering students at Valpo.

Faculty Sponsor: Michael Doria

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A Study Analyzing the Influence of Public Relations Media Campaigns on Women's Attitudes Toward Health and Fitness

Kendra Baker and Monica Rowan

Departmental Affiliation: Public Relations, College of Arts and Sciences

Women are stereotypically concerned about their appearance, and fad diets have been popular in recent decades to help women keep off extra weight. In the past few years, however, new exercise trends such as women-only gyms and a focus on wellness (not just thinness) have emerged (O'Sullivan 1998). Public relations campaigns have utilized the media to increase women's awareness of the importance of exercise and to promote healthy weight loss methods. To study the media's local impact, 150 women between the ages of 18-65 were surveyed at a women's only professional fitness center and an all female University dormitory. The questionnaire focused on each woman's perspective of fitness as well as her opinion on media's influence on body image, women's fitness, and health issues. The results of the study found that the media had a large influence in this shift from unhealthy weight loss methods to exercise. This conclusion supports the Agenda-Setting Theory and the Cumulative Effect Theory as illustrated in The Public Relations Handbook (Heath 2002).

Information about the Authors: Kendra Baker is a junior public relations major with minors in business and public speaking. She is the news director for WVUR, an Ambassador in Admissions, part of the Valpo Overnight Visit Committee, and a member of the Honor Council, Public Relations Student Society of America, the Association for Women in Communication, the Campus Community Policy

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Committee, and Kappa Kappa Gamma. She is also a co-chair of 2004=s
service-learning, multicultural community event "Festival of Voices.@ Upon
graduation, she would like to pursue a position at a public relations agency.

Monica Rowan is a senior majoring in Sports Management with a Business Administration and Communication minor. Ms. Rowan is a four-time varsity letter recipient as a member of VU's division one softball program. After graduation she plans to take the ACE (American Council of Exercise) examination to become certified as a personal trainer. Monica=s passion is working out and staying healthy and she can=t wait to share that passion with other fitness enthusiasts.

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An Analysis of Valparaiso University Honor Code Accusations: Statistics, Trends, and Observations

Kendra Baker, Andrea Bronner, Kari Brown, Julie Davidson, Danielle Folger, Sage Miodov, David Moller-Gunderson, Josh Poling-Goldenne, Sarah Severson, Adam Weinke, and Elizabeth Weston, Henry Yep

Departmental Affiliation: VU Honor Council

The purpose of this project is to better inform all members of the Valparaiso University community regarding the frequency, categories, and outcomes of reported Honor Code violations. It is the Council's hope that policy recommendations will be made based upon this information to further promote academic integrity and scholarship at VU. The Council has experienced an increased number of reported Honor Code violations in recent semesters. To determine trends, confidential case files between 1996-1997 and 2003-present were examined. Accused students were categorized according to the following criteria: sex, type of violation, outcome, identity of accuser (student or faculty), and course of violation. Cases were grouped by academic years. Using statistical analysis software, the data will be presented in a visual format for educational purposes at VU and other appropriate venues. The data is expected to display an increasing trend of reported Honor Code violations at VU. Although not an accurate measure of actual cheating, the data will validate or invalidate various claims made about the Honor System and the violations that occur. The data will highlight potential areas of concern that could be addressed by the University, such as Internet plagiarism and proper usage of citation.

Information about the Authors: Project volunteers embody a spirit of volunteerism, dedication, and service They reflect the diversity within the Honor Council. Students from eleven departments (i.e. Electrical Engineering, Nursing, History, Political Science, Public Relations) contributed various skills and talents to ensure the project's quality and success. Students also represent a variety of student affiliations such as the VU Hockey Club, WVUR, Greek organizations, musical ensembles, Residential Assistants, and civic organizations. Promoting academic integrity by providing useful data to the University community represents the motivation behind our efforts. Project volunteers hope that collected data will help decrease the frequency of violations by addressing areas of concern to our academic community. Apart from this endeavor, our volunteers hope to carry their experiences of Honor Council membership with them beyond graduation. The students plan to be involved in areas including: the Peace Corps, Congress, health

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care, federal law enforcement, corporate communications, and the U.S. Foreign Service.

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The Role of the Public Relations professional in Establishing and Maintaining the Reputation and Image of Athletic Organizations

Ryan Barno and Meredith Baugher

Departmental Affiliation: Communication, College of Arts and Sciences

The image of athletes and teams is always a concern for an organization. The interface between the athletic organizations and the media suggests the constant adjustment of teams to the agenda-setting process. This study examines the nature of the reputation of sports organizations from the perspective of the key publics. The data will be focused on those professionals who create these images and are involved in issue management.

Meredith Baugher is a public relations major. Ryan Barno is a double major in sociology and public relations.

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Tree Selection by *Sphyrapicus varius* in an Oak-Hickory Woods in LaPorte County, Indiana

Jonathan Bauer

Departmental Affiliation: Biology, College of Arts and Sciences

Yellow-bellied sapsuckers, *Sphyrapicus varius* are migratory woodpeckers that frequently feed on tree sap through holes they drill in the bark. Studies conducted in central Illinois have indicated that hickories are a preferred tree in oak-hickory woodlands. However, tulip trees and sugar maples are an important food source for sapsuckers and the tulip tree's range does not reach central Illinois and sugar maples become less common in Illinois than in Indiana. This study compares the relative dominance of trees in an oak-hickory woods in LaPorte County, Indiana to the relative dominance of trees attacked. All of the trees with sapsucker feeding holes were hickories, which shows a strong preference over the oaks and black cherries which were more common in the study site.

Information about the Authors: I am continuing this research by investigating a possible correlation between the sap flow rates and sugar content of three tree species and the timing of yellow bellied sapsucker migration. I will graduate in May with a degree in Biology and Chemistry and will study conservation biology at Illinois State University next fall.

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Bias Motivated Incidents in Northwest Indiana

Adam Bautista, Brad Brown, Donna Garchie, Tom Matthews, Elle Schroeder, Justin Watkins

Departmental Affiliation: Political Science, College of Arts and Sciences

The purpose of this study is to examine bias motivated incidents in Northwest Indiana from January 1, 1990 through December 31, 2003. The definition of a bias incident used here is "behavior that constitutes an expression of hostility against the person or property of another because of the victim's race, religion, disability, sexual orientation, or ethnicity/national origin. The study examines the frequency, location, type, and severity, of such incidents and searches for any other trends or patterns in these events. Seventy-eight bias related incidents have been discovered. While there are dangers in drawing conclusions about tendencies across time given only a fourteen-year time period, there does appear to be an increase in the frequency of bias related incidents. Putting all the data together, there appears to be a gradual movement of bias related incidents closer to the Valparaiso area coupled with a tendency to more likely be bias motivated vandalism and swastika paintings. The conclusion as to whether the events are becoming more severe depends on how you measure severity and what County you are talking about. Overall, however, the conclusion that bias related incidents are becoming more serious is justifiable, especially as it pertains to Porter County.

Information about the Authors: All students in this project are research associates in the department of political science's Community Research and Service Center. The Center began this project several years at the request of members of the local community who were concerned about such incidents, their nature and frequency. The study continues to have an impact on discussions about race and related matters in this community.

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An Evaluation of Parks and Recreation in Valparaiso, Indiana

Adam Bautista, Brad Brown, Christopher Buckley, Rochelle Durden, Donna Garchie, Mark Godecke, Kristopher Hardaway, Jonathan Kirsch, Matthew Kohnke, Andrew Kowalski, Tom Mathews, Brian Priest, Elle Schroeder, Justin Watkins, John Weber

Departmental Affiliation: Political Science, College of Arts and Sciences

Four hundred responses were received from a survey mailed to a random sample of residents of Valparaiso, IN and Center Township. Responses indicate that residents are very satisfied with both the parks and recreation offered by the City and the YMCA. When asked about future needs, most persons favor adding more bike trails and open green space. Comparisons were made among a variety of different types of people with the major differences occurring between people who had and did not have children.

Information about the Authors: All students in this project were either members of political science 260 or worked for the Community Research and Service Center at Valparaiso University. The Valparaiso Parks and Recreation Department and the Valparaiso YMCA asked the Community Research and Service Center to do this project for the purposes of planning for future parks and recreation.

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Ice Ice baby

Libby Berg

The ripples that form on icicles define a characteristic wavelength of the icicle. This wavelength depends on the angle of the incline plane on which they form. However, the measured wavelengths as a function of angle are not in agreement with the theoretically predicated dependence of the wavelength on the incline angle. In this experiment, icicles will be produced on an inclined plane with different values of the angle and the average wavelength will be measured for each angle. The relationship between the wavelength and the angle will be compared to the predicated value and the published experimental values.

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Popular Culture and the Role of Public Relations

Lynn Bordon and Brianna Lemerond

Departmental Affiliation: Communication, College of Arts and Sciences

Popular culture is considered to be one way for investigating the role of communication, particularly public relations. In this study, research was reviewed for key themes. These themes were examined in regard to key cultural developments and analyzed in terms of the role of public relations. The results indicate the impact of public relations tactics and strategies reinforce and support popular cultural through various messages. The implications suggest the need to create a media literacy effort to assist people in understanding better such media images.

Information about the Authors: Brianna Lemerond and Lynn Bordon are public relations majors.

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The Sarbanes-Oxley Act of 2002 and Its Impact on the Accounting Profession.

Jennie Bower, Dustin Marciniak, Dan Kuipers, Brett Mueller

Departmental Affiliation: Accounting, College of Business Administration

Due to the growing number of accounting scandals that have taken place in the corporate world Congress, in 2002, enacted the Sarbanes-Oxley Act. Along with this Act come a great deal of changes that will affect not accounting firms, but their clients and those clients= investors as well. In order to adapt, firms must develop procedures for dealing with these changes and then consistently apply them to their everyday business dealings. These changes, if implemented properly, will improve the quality of the services accounting firms provide to their corporate clients and the assurance given to their investors. With the full effects of the application of this law yet to be seen, we believe it will benefit both the information and professional credibility of public accounting.

Information about the Authors: Dustin Marciniak: Senior, Accounting and Finance Double Major
Jennie Bower: Senior, Accounting and Management Double Major
Dan Kuipers: Senior, Accounting and Management Double Major, History Minor
Brett Mueller: Senior, Accounting Major

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R. Jesse Bowman, Audri Johnson, Sarah Severson, Chris Triebes

Departmental Affiliation: Psychology, College of Arts and Sciences

This study was designed to determine the effects of aromatherapy and the participant=s expectations about aromatherapy on overall mood. The scents used were lavender and citrus. Participant=s expectations about the scents were manipulated by telling them effects the scent would have on their mood. Some were told the scent would have an energizing effect, while others were told it would be relaxing. 33 participants mood were measured before and after treatment with the PANAS mood scale. Results showed that participants were significantly influenced by researchers as to the effect of the scent.

Information about the Authors: Audri Johnson is a junior who is currently studying abroad in Africa. Jesse Bowman, a junior, is a member of Mortar Board, a member of Sigma Phi Epsilon fraternity, the secretary/treasurer of InterFraternity Council, and participates in assorted volunteer work. Jesse plans on attending law school after graduation. Sarah Severson is a sophomore who is a member of Delta Delta Delta sorority, the Service Project Coordinator for V.O.I.C.E., and a member of the Honor Council. Sarah plans on attending graduate school to obtain a degree in Clinical Psychology. Chris Triebes is a junior who plans on attending graduate school after graduation to obtain his master's degree.

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Valparaiso University Students Views on Sports

Brad Brown

Departmental Affiliation: Department of Sociology, College of Arts and Sciences

My presentation will explain the results I found from a self-administered survey I carried out in the Fall of 2003 studying the effects of gender on the popularity of male vs. female sports. With the emergence of women's professional sports leagues becoming more prevalent the question arises, how are these leagues being perceived? Are they popular among the general population or just females? I suggest that although women's athletics are becoming more prominent, the sports world is still very dominated by male sports and male athletes. In order to study these questions I used a self-administered questionnaire that was given out to all Fall 2003 sociology classes at Valparaiso University. The questionnaire included some basic demographic information (sex, year in school, race) as well as questions concerning current and previous sports participation, interest in various male and female sports, and overall interest in sports. I received a total of 243 responses, with 53% of the responses being female and the other 47% being male. My presentation will focus on univariate and cross tabulation analyses using the computer program Microcase. I hope to show correlations between interest in women's sports and sex, previous sports participation, and enthusiasm for sports

Information about the Authors: The reason for selecting this project was to fulfill the project requirement for my Sociology 320 class: Research Methods in Sociology in the Fall of 2003. I chose the topic because I am a big sports enthusiast and could not think of a better project to work with than one that brought out my interests and combined sociological concepts.

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Public Relations Adapting to Global Challenges

Rebecca Brunette and Bridget Fetters

Departmental Affiliation: Communication, College of Arts and Sciences

Technology created public relations into a global profession. How the agencies adapt to the different cultural expectations when working with clients illustrates the critical role for public relations in its boundary spanning activity. The literature from multicultural, intercultural, and global public relations efforts will be utilized to demonstrate the wide range of knowledge and strategies used to bring about impact

Rebecca Brunette and Bridget Fetters are public relations majors. Rebecca is co-president of the Association for Women in Communication student chapter.

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Sharpening Flavor-discrimination after a Preexposure-to-training Delay: An Investigation of the Effectiveness of a Context-flavor Reminder Treatment

Sheldon Bruno, LeeAnn Cenefelt, Amy Pawlik, Sarah Spencer, Kristen Templin

Departmental Affiliation: Psychology, College of Arts and Sciences

Conditioned Taste Aversion (CTA) is established by pairing a novel flavor with illness. Once a subject has become ill after ingesting a flavor, it will avoid sampling that flavor on later trials. Moreover, subjects will avoid sampling flavors that are similar to the one that had been paired with illness. Past research has shown that preexposure to similar flavors reduces this generalized aversion and allows subjects to differentiate between flavors associated with illness and flavors that are not associated with illness when training occurs immediately. However, preexposure-to-conditioning delays have been observed to weaken expression of flavor discrimination. The present study examined the effectiveness of a context-flavor reminder treatment in sharpening memory for flavor stimulus attributes that had been weakened by such a delay. Two groups were included in the design: a control group, which received no reminder treatment, and a reminder group, which received a small amount of non-illness-producing preexposure flavor prior to test. Results indicate that the reminder treatment did not produce renewed flavor discrimination. However, a preference for the reminder flavor suggests that an alternate reminder procedure may be more effective.

Information about the Authors: Kristen Templin is a senior Psychology major from Madison, Wisconsin. Amy Pawlik is a senior Political Science and Psychology double major from Michigan City, Indiana. LeeAnn Cenefelt is a junior Psychology and Criminology double major from Green Bay, Wisconsin. Sheldon Bruno is a senior Psychology major from Oak Park, Illinois. Sarah Spencer is a sophomore Psychology major.

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An Investigation of Context Effects in the Morris Water Maze

Departmental Affiliation: Psychology, College of Arts and Sciences

The Morris Water Maze is an apparatus that has been developed to investigate spatial functioning and memory (Morris, 1981). To navigate the maze, rats must swim in an open tank of water to find a platform. This platform is concealed under the water. Although rats are good swimmers, most prefer to stay dry. Therefore, finding the platform (and escaping the water) is reinforcing for the subject. In fact, once the platform has been located in the maze, a subject will usually return to it more quickly on successive trials. This study sought to examine the link between pre-exposure to elements of the maze and performance of the task. Five groups were included in the design. The control group was not pre-exposed to any elements of the experimental apparatus. The four experimental group manipulations included pre-exposure to the tank in the training context, pre-exposure to the tank while in an alternate context, pre-exposure to the platform position while in the training context, and pre-exposure to the platform position in the alternate context. For all pre-exposure trials the tank contained no water. Preliminary findings indicate subjects' tendency to use extra-maze cues to locate the platform.

Information about the Authors: Kristen Templin is a senior Psychology major from Madison, Wisconsin. Amy Pawlik is a senior Political Science and Psychology double major from Michigan City, Indiana. LeeAnn Cenefelt is a junior Psychology and Criminology double major from Green Bay, Wisconsin. Sheldon Bruno is a senior Psychology major from Oak Park, Illinois. Sarah Spencer is a sophomore Psychology major.

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Differentiating Photon and Neutron Interactions Inside a NaI Detector Using the Crystal Ball Spectrometer at Brookhaven National Laboratory

Brian Bucher

Departmental Affiliation: Physics, College of Arts and Sciences

The purpose of my summer research was to distinguish between photon and neutron interactions in typical NaI detectors using experimental data. This was done using basic patterns of particle energy deposition and particle kinematics at various energies with an array of NaI detectors. Data from the Crystal Ball (CB) spectrometer, a spherical array of 672 NaI crystals, have been analyzed using the $p+p \rightarrow p^0+n$ reaction. For this reaction, the CB will typically detect three separate energy clusters (two photons and one neutron). Both data and results of this analysis will be presented.

Information about the Authors: I am a junior physics student at Valparaiso University. I am from Valparaiso, IN and commute to school. I have worked for the VU Department of Physics for the past two summers. Last summer I did research work in nuclear physics which I plan to present at the conference.

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Volume of Music: Does it Affect Cognitive Performance?

Departmental Affiliation: Psychology, College of Arts and Sciences

Our experiment investigated the effect of the volume of a Mozart music selection on math, spatial, and mechanical tests. One group completed the tests in a loud (86 decibels) condition, another group completed the tests in a soft (58 decibels) condition, and another group acted as the control group and completed the tests with no music. Participants also completed before and after questionnaires pertaining to their mood. Participants had 10 minutes to complete the tests: two minutes for the math section, five minutes for the spatial section, and three minutes for the mechanical section. Statistical analysis showed no significant effects. We cannot make any definite conclusions due to a small sample size and inability to generalize. Our findings were consistent with some previous experiments in this area.

Information about the Authors: Cory Lightner is a Sophomore Psychology Major from Wabash, IN. She is interested in continuing her education in both Psychology and Law in the hopes of working with children in one or both of these fields. On campus she is involved with the Alpha Lambda Delta Honor Society, the Pre-Law Society, VOICE, the Cafe Manna Soup Kitchen, and the Link'n'Learn Tutoring Program. Kristiana Dixon is a Sophomore Psychology Major from Detroit, MI. She is the daughter of Bruce and Marla Dixon and has two siblings. She is a member of the VU Soccer Team. Sara Spencer is also a Sophomore Psychology Major. She is from Fridley MN, a suburb of Minneapolis MN. She is hoping to do research in some psychological field, possibly in the field of neuropsychology after graduate school.

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Underserved Clients at a Nurse-Managed Center: Health Related Quality of Life
Krystal Camalick, Liz Eischer, Dana Hazen

Departmental Affiliation: Nursing, College of Nursing

Achieving and maintaining an optimal level of wellness promotes health related quality of life. According to Healthy People 2010, there are more than 40 million individuals in the US who do not have health insurance. Adults who are underserved often exhibit a life-style that lacks wellness behaviors necessary for an improved quality of life. The purpose of this study was to evaluate the relationships among life-style, health behaviors, and health related quality of life for underserved and uninsured adults at a nurse-managed center. Bruhn's (1998) framework of life-style and health behavior was used to guide this study. According to Bruhn, multiple factors influence the development of life-style and health behaviors that ultimately impact health-related quality of life. A convenience sample of 111 men and women, 19 to 64 years of age ($M = 39.7$), were recruited from a nurse managed health center for underserved clients. Data were collected prior to a health care visit and via a phone call at three months. Instruments for data collection included: (a) an investigator developed questionnaire to measure health related quality of life. All measures of health status significantly decreased ($p < .002$) as the number of reported symptoms and medical conditions increased. Perceived general health status increased significantly at three months ($t = -1.111$, $p = .279$) health status did not increase significantly at three months. These findings will be

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used to meet the needs of underserved populations, promote healthy life-styles,
and improve overall health-related quality of life.

Information about the Authors: Dana Hazen is a senior nursing major from Noblesville, Indiana. She has worked in medical-surgical and in emergency room departments as a student nurse extern. Upon graduation, she plans on attending graduate school to pursue a master's degree in public health. Krystal Camalick is a junior nursing major from Burr Ridge Illinois. Last summer, she worked as an intern at the Rehabilitation Institute of Chicago. Krystal has an interest in working in pediatric intensive care upon graduation. Liz Eischer is a sophomore nursing major from St. Louis, Missouri. Her field of interest is in pediatric oncology. This year the research team has had the opportunity to present the results of their research at Northwest Indiana Research Consortium in Merrillville, and the annual Midwest Nursing Research Society conference in St. Louis.

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The Physiological Effect of Sudden Stimulus Presentation on Human Heart Rate:
An Investigation of Habituation and Sensitization

Nathan Coomer, Paul Goffron, Miranda Minnich, Natalie Muskin, and Elizabeth Stelter

Departmental Affiliation: Psychology, College of Arts and Sciences

The effect of the sensitization and habituation reflex on human subjects' pulse rates was investigated. Specifically, 73 college students (31 males, 42 females) from Introductory Psychology courses were exposed to one of four different trials in which the processes of habituation and sensitization were studied. These effects were investigated by using the acoustic stimulus produced by a bass drum being beaten over varying periods of time. To provide baseline context, the acoustic stimulus was accompanied by calming background music. The between-subjects design included conditions to examine both regular and random intervals of stimulus presentation. It was hypothesized that subjects who were exposed to regular intervals of the eliciting stimulus would habituate faster to the stimulus than those who were exposed to random intervals of the stimulus. Findings did not indicate that the type of interval between acoustic stimulus produced significant habituation or sensitization in participants. Instead, researchers propose that the overall length of the trials along with the large amount of individual variability were better explanations of the observed effect.

Information about the Authors: Nathan Coomer is a senior double major in Psychology and Exercise Science. He is planning to pursue a Doctor of Physical Therapy degree at Northwestern University. Paul Goffron is a Junior Psychology major with a Spanish minor. He plans to pursue graduate study in School Psychology. Miranda Minnich is a Junior Psychology and Spanish double major. Her current career interest is in counseling. Natalie Muskin is a Junior Psychology and Criminology double major. She plans to pursue graduate study integrating the two areas. Elizabeth Stelter is a Junior Psychology major with a Human Biology minor. She plans to pursue graduate studies in Industrial/Organizational Psychology.

Faculty Sponsor: Angela Vernon

A Uniform Stable Magnetic Guide-field for a Novel EDM Experiment

Ross Corliss

Departmental Affiliation: Physics, College of Arts and Sciences

A novel experiment to search for a neutron electric dipole moment (EDM) is being developed by a small group of physicists from Valparaiso University, Fermilab, Argonne National Laboratory, the University of Missouri Research Reactor (MURR), and NIST. This approach will generate entirely different systematic errors than other EDM experiments, and has the potential to reach or extend the upper limit on the size of the neutron EDM. If a neutron EDM is discovered, it will be evidence for time-reversal symmetry violation and, using the CPT theorem, an indication for CP violation as well.

The experimental design uses a perfect silicon crystal with precision slots that cause incident neutrons to undergo many Bragg scatterings in the very large electric fields of the silicon atoms. An EDM signal will then take the form of a rotation of the neutron polarization. The design requires a solenoidal magnetic guide-field that is uniform in space and time in the vicinity of the crystal. The experimental setup will be described, including the solenoid, associated magnetic field map measurements, and efforts to stabilize the magnetic field sufficiently for a neutron magnetic dipole moment (MDM) measurement at MURR.

Information about the Authors: Ross Corliss is a Junior in the Physics Department. He is a member of the VU fencing club.

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Radial Arm Collector Wells and Groundwater Flow

Ross Corliss, Steve Klee, Dan Tesch, Josh Vredevoogd

Departmental Affiliation: Mathematics, College of Arts and Sciences

Our project investigates the behavior of Singular Value Decomposition (SVD) when used to solve a non-square system of equations associated with a physical problem requiring physical symmetry in the solution.

Our test case models the flow of water in an infinite three-dimensional flow (potential) domain to a radial collector well centered at the origin of the flow domain. This well is composed of point sinks placed along lines (arms) distributed around the origin in a radially symmetric manner. The amount of water drawn by the well is the sum of the strengths of all its point sinks. As a boundary condition, we require the flow potential to be constant along the arms of the well. In order to satisfy this boundary condition, we place control points along the arms of the well at which we enforce that constant potential. This requirement produces one equation per control point, so that we end up with an $m \times n$ system of equations to solve (m is the number of equations / control points, n is the number of unknowns / point sink strengths). Solutions can often be improved (overconstrained) by inserting extra control points along the radial arms, resulting in a system with more equations than unknowns. Singular Value Decomposition (SVD) is used to solve the system of equations generated in the problem. When a physically symmetric system is modeled, the solutions should, by necessity, also be symmetric. When the system

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is over-constrained, however, the solution returned by SVD is asymmetric. This paper describes work done to investigate this behavior.

Information about the Authors: Dan, Ross, and Steve are all Math majors, while Dan is also majoring in CS and Ross is majoring in Physics. Dan is a sophomore, Ross and Steve are juniors, but Steve is studying in Budapest this semester. All three plan on attending graduate school in the years to come. Josh Vredevoogd is a freshman physics major.

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There Once Was a Man from Elkosh: An analysis of Biblical Poetry in the Book of Nahum.

Caleb Crainer

Departmental Affiliation: Theology/Hebrew, College of Arts and Sciences

The often-overlooked poetic book of Nahum provides a perfect microcosm to examine the grammatical and stylistic aspects of Classical Hebrew poetry. This poster will expose some of the structural, rhetorical, and poetic nuances of the text in such a way to bring life and meaning to an intimidating book. The Dead Sea Scrolls Nahum Commentary (4Q169) will be examined to produce a more accurate understanding of the text. This poster will present Nahum in a literary and contextual setting, which will make a more authentic reading possible.

Information about the Authors: Caleb is a Junior studying Theology and Hebrew. He is returning to Valpo this semester from a semester abroad at Ben-Gurion University, Be'er Sheva, Israel.

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Business Disaster Recovery Plans: An Effective Evaluation Method

Brian R. Duclos, Leslie L. Fobian, Leslie A. Morrow

Departmental Affiliation: Management, Marketing, Finance, College of Business Administration

Recent terrorist attacks, severe weather, and unexpected utility failures have increased companies' awareness of business disaster recovery plans. Benefits of such plans include the assurance of employee safety, timely recovery of fundamental business operations and minimization of financial losses. An inadequate disaster recovery plan significantly impairs the ability of a company to minimize the impact and successfully recover from an unexpected event. Despite the increased creation and awareness of disaster recovery plans, many companies still fail to invest the necessary time and resources to fully maintain a comprehensive, viable plan. This study examines the necessary elements of a solid evaluation program for business disaster recovery plans. Business continuity professionals, who work closely with such plans, were surveyed to aid in the identification and assessment of key characteristics. Using their recommendations, this paper constructs a sample evaluation program for disaster recovery plans. Companies must regularly assess their plans through detailed evaluation programs that consider the plan's accuracy, feasibility, and flexibility. Utilizing a properly

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evaluated recovery plan will enable a company to maintain organizational viability in the event of a disaster.

Information about the Authors: Brian Duclos is a senior management major with associate designation from Christ College. Brian currently serves as the Vice President of Professional Activities for Delta Sigma Pi, VU=s international business fraternity. He is the business manager for The Torch and also in Beta Gamma Sigma, the business honor society. Leslie Fobian is a senior business student, majoring in marketing. She will also receive a minor in international business. Leslie has been involved with Residential Life, Student Senate, VU=s international business fraternity, Delta Sigma Pi, and is co-leader of a volunteer service organization, V.O.I.C.E. She works in Volunteer Programs. Leslie Morrow is a senior business student, majoring in finance and minoring in international business. She is also a member of Christ College. Leslie is the VP of Alumni Relations for Delta Sigma Pi, the Membership Chair for Mortar Board-VU=s national senior honors society, and in Beta Gamma Sigma.

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Cognitive Effects on Mood and Self-Focused Attention

Ben Dunham-Freer and Elizabeth Stelter

Departmental Affiliation: Psychology, College of Arts and Sciences

This study examines how a person's mood affects self-focus; the amount of time a person spends thinking about herself/himself. In addition, this study measures Negative Mood Regulation (NMR) as well as Need for Cognition. Specifically, NMR is a person's ability to cope with stresses in life while Need for Cognition is a person=s desire to think. A 30 item scale measuring negative mood regulation and an 18 item need for cognition scale were distributed to the college students to assess the two scales' relation to self focus. Furthermore, subjects were exposed to 1 of 3 testing conditions, negative, positive, or neutral mood, consisting of 10 minute music selections that have been found to establish a mood (Vastfjall, 2002) as well as a lexical decision making task to determine self-focus. We predict that negative mood caused increased self-focus. We expect people with a high Need for Cognition will be more likely to be self focused when in a negative mood. Inversely, we expect people high in NMR to be less self focused when in a negative mood.

Information about the Authors: Ben Dunham-Freer is a junior psychology major, human biology and social work minor, and Christ College student. He plans on pursuing a career in clinical psychology. Elizabeth Stelter is a Junior psychology major and human biology minor. She plans on pursuing a career in the field of industrial organizational psychology.

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Equitably Labeling the Grid

Briana Ehrhardt, Nina Miller, Laura Stellfox, Ryan Turner

Departmental Affiliation: Mathematics, College of Arts and Sciences

In our research we consider a graph labeling problem. We look at regular square grids that consist of connected unit squares. (You can think of any part of the

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rectangular coordinate system with all the unit lines drawn.) We will consider each grid a graph. In this graph, each corner of a square is a vertex and each side of a square is an edge. We label the vertices with non-negative integers. The label on an edge is the absolute value of the difference between the labels of the two vertices connected by the edge. We want to use k different labels to label all vertices and edges, and we want to distribute the labels as equally as possible among the vertices. We will require that in the induced labeling for the edges the labels are also as equally distributed as possible. We share our results regarding different size grids (finite and infinite), and different $k=s$.

Information about the Authors: Nina Miller is a senior math major with minors in physics and Spanish. She plays the oboe in chamber concert band, and is a member of IVCF, Dance etc, and the Ultimate Frisbee Club. Laura Stellfox is a junior math and secondary education major. She was inducted to Alpha Delta Lambda her freshman year. She plays intramural sports, including volleyball, soccer, and floor hockey. Ryan Turner is a freshman math and secondary education major who plays baseball and is pledging at Sigma Chi fraternity. He comes from Lutheran High School South in St. Louis, Missouri. Briana Ehrhardt is a senior math and actuarial science major. She played varsity soccer for four years as well as many intramural sports.

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Sports Promotion and the Role of Public Relations in Minor League Baseball

Annie Elzey and Ben Galvin

Departmental Affiliation: Communication, College of Arts and Sciences

The promotional aspect of public relations supports minor league baseball organizations expanding their customer and fan base. By targeting particular audiences such as college students, senior citizens, minorities and other ethnic groups, the outreach possibilities are improved. Minor league baseball is more entertainment than a game. The promotions and "fan friendly" image makes it imperative to understand the role of public relations. Two theories explored for the analysis focus on gratification theory and agenda-setting theory. A questionnaire surveyed target audiences for their knowledge and support of these organizations. The results suggest there are audiences not fully included in the public relations efforts.

Information about the Authors: Ben Galvin is a business major. Annie Elzey is a public relations major.

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Lightning Trends and Their Relationship to Severe Weather

Stacy Gaard

Departmental Affiliation: Geography & Meteorology, College of Arts and Sciences

This study was conducted in order to determine if the number of cloud-to-ground lightning strikes had any correlation to the timing of severe weather. Lightning strike trends were tracked on radar for isolated cells in which severe weather occurred. Since this study was limited, only a small number of cases were analyzed. If

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a correlation exists in lightning trends alone, it would be possible to increase lead-time on warnings.

Information about the Authors: I am currently a junior meteorology major at Valparaiso University. This project was conducted this past summer at my internship at the National Weather Service in La Crosse, WI. After graduating from VU, I plan on attending graduate school for solar physics to prepare myself for a career in space weather.

Faculty Sponsor: Teresa Bals-Elsholz

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Religious Orientation and Eating Disorders Among College Aged Women

Stacy Gherardi and Carrie Gross

Departmental Affiliation: Social Work, College of Arts and Sciences

Eating disorders have been of increasing concern in the collegiate world. Studies suggest an increased propensity toward anorexia, bulimia, and other such disorders among individuals who exhibit high traits of religiosity (Abbott-Chapman and Denholm, 2001). This study explored this correlation in Christian women at Valparaiso University. Data was collected by administering a questionnaire to females ages 18-22. The questionnaire included the Eating Attitudes Test-26 (EAT: Garner and Garfinkel, 1979) as well as Allport's Religious Orientation Scale (Allport and Ross, 1967). The Religious Orientation Scale distinguishes between extrinsically religious individuals who "use" their religion and intrinsically religious individuals who "live" it. Participants included female students from sixteen Valparaiso classes and campus Christian groups. Traits of perfectionism and fear of maturity that often accompany eating disorders are prevalent in individuals with high extrinsic religious orientation (Kennedy, Barnes, and Greenwall, 1988). It is hypothesized that highly intrinsic religious individuals would score lower on the EAT-26 than the highly extrinsic religious individuals but higher than those with low overall religious orientation. Tests used were a chi-square test and an ANOVA.

Information about the Authors: Carrie Gross is a junior social work major and urban studies minor. Stacy Gherardi is a junior social work and international service major. This topic was selected due to the increased concern and propensity of eating disorders among college aged women. The results of this research could be used to explore issues that should be addressed by the campus community as a whole as well as the religious community of this campus.

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How Are You Feeling Today: A Student Evaluation of Campus Health Services

Sarah Haberaecker, Korina Lopez-Murphy, Christa Peters

Departmental Affiliation: Social Work, College of Arts and Sciences

A common perception among students at Valparaiso University is that the Health Center does not adequately meet the needs of the undergraduate students. In response to this perception, research was conducted to establish validity of the students' viewpoints. Two aims have been identified as the motivation of a survey-based study in order to create awareness in regards to the satisfaction of the Health Center and to contribute to the well being of the student body. The first

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aim was to measure students' general satisfaction with the Health Center with regards to staff, diagnoses and treatment. The second identified the correlation of the students' hometown geographic location and their frequency of use of the Health Center.

The method of research was to distribute anonymous surveys among members of the undergraduate student body. Thirty-five surveys will be gathered from each of the following self-identified groups: freshman, sophomores, juniors, and seniors. These surveys will be gathered from various students in the Valparaiso Student Union and also from students in random undergraduate courses. The method was used to obtain a representative sample of the undergraduate student body as a whole. The information collected will benefit the campus community by presenting factual data with regard to students' satisfaction of the Health Center.

Information about the Authors: All three students researching this topic are currently enrolled in Social Work 365 - Introduction to Methods of Social Research. These students are Social Work majors focused on promoting positive change within their communities. They each have internships through the Social Work department at The Gary Police Department (Sarah), The Aliveness Project (Christa), and Canterbury Place (Korina). This project has allowed them to conduct beneficial research within the Valparaiso University community to benefit the student body as a whole. These three students are aware that other students on campus may not regard the VU Health Center in the highest manner so they set out to clarify student perceptions and provide the University with concrete data.

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Further Development of a Biocatalytic Method for Synthesizing Enantiomerically Pure Lactones

Kasey Hammond, Chrissy Marasco, and Kyle Miner

Departmental Affiliation: Chemistry, College of Arts and Sciences

Nature is an efficient and fascinating chemist. The different biological systems found in nature contain vast numbers of enzymes serving as biocatalysts for all necessary life processes. These enzymes found in nature are incredibly energy-efficient while also non-harmful to the environment. If these enzymes could be used to catalyze reactions crucial to industries such as the rapidly-growing pharmaceutical industry and food and chemical industries, they would provide a relatively inexpensive and environmentally-friendly way of running a diverse collection of reactions. This project is one piece of a large, ongoing collaborative effort including students and faculty at Hope College (Holland, MI) and Furman University (Greenville, SC). The overall goal of this project is to use biocatalysts to generate a class of molecules called lactones. A number of lactones are insect sex pheromones and thus have potential to be used in environmentally friendly insect control. Lactones are also widely used as building blocks in the preparation of many pharmaceutical agents. Specifically, we have been using different analytical instruments to characterize the previously synthesized substrate to react with our enzyme. Also, we are in the very early stages of genetically engineering the enzyme into a form that is more easily isolated and purified.

Information about the Authors: Kasey Hammond is a senior biochemistry major, planning on attending graduate school at the University of Colorado-Boulder next

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fall to study signal transduction. Chrissy Marasco is also a senior, double-majoring in chemistry and mechanical engineering. She is currently deciding on a graduate program to attend next year for biochemical engineering/biotechnology. Kyle Miner is a junior biochemistry major.

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Molds in Buildings: A Summary of Engineering Guidance and Related Issues

Amanda Harmon

Buildings in more recent years have been designed and built more airtight than in the past, making conditions for mold growth ideal. With the increased growth came health problems and property damage, and not surprisingly a development of insurance claims and lawsuits. Fingers have been pointed at engineers among others as responsible for these mold problems. Until recently, no codes, regulations, or laws existed to guide the engineers in designing and monitoring buildings to avoid mold problems. Slowly engineering and construction professional societies and government agencies started to take a more aggressive look at how to combat this nationwide epic. Engineers have the capacity to prevent and correct current mold related problems so ultimately the aim is toward the engineers to help preserve the health and welfare of our society and the environment. This research provides a compilation of the current engineering methods and guidance for designing and constructing commercial and residential buildings that minimize mold problems. Other issues related to mold such as insurance and liability, health effects from exposure, testing methods, remediation methods, resistant materials, and regulations are also discussed and summarized in this paper.

Information about the Authors: This project deals with an important issue facing engineers today. This research will help myself and those I share it with become aware of the problems with toxic mold and how we can help combat the problems. I think it is important to stay current on issues such as this so we can do our part in helping to protect the environment. This knowledge will be applicable to any career in the civil engineering field.

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Dress Yourself PR Style

Amanda Hassebrock, Ruth Norman, Jackie Zuniga

Departmental Affiliation: Public Relations, College of Arts and Sciences

It is evident that a career in fashion PR is a growing trend. Research indicates that fashion schools are focusing on the role of public relations. Many students, particularly those studying public relations, have the misconception that a background in fashion is needed to pursue a career in fashion PR. This study is focused on the fashion industry, how it utilizes public relations in terms of PR agencies or corporate PR and displays how PR majors adapt their skills to the fashion industry. The questionnaires and structured interviews conducted with the fashion PR professionals in the field (both academic and practitioners) indicated that the basic tactics and strategies are similar. The data established that a strong background in fashion is not needed. A fashion public relations specialist only needs to learn the organizational infrastructure and culture to adapt.

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Information about the Authors: Ruth Norman is Junior Public Relations major from Hobart, IN. Ruth participated in Festival of Voices is currently working with WYIN on an awareness campaign and will be studying abroad in Germany in Fall 2004. She hopes to get a summer internship with a leading PR agency in Chicago and be hired by one after graduation as well. Amanda Hassebrock is a sophomore Public Relations and Psychology major from Raleigh, North Carolina. Jackie Zuniga is a Sophomore Public Relations major from Hammond, IN. Jackie was involved Festival of Voices and is currently interested in fashion PR

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Incorporating Standard CMOS Design Process Methodologies into the QCA Logic Design Process

Steve Henderson, Jason Janulis

Departmental Affiliation: Electrical and Computer Engineering, College of Engineering

As the size and complexity of QCA digital circuits increase, the amount of time needed to create a QCA layout and then simulate the quasi-adiabatic switching of that layout significantly increases. To help reduce this development time, the same design process methodology that has been applied in developing CMOS circuits over the past 15 years can be used in the development of QCA circuits. This methodology involves creating and verifying the circuits at higher levels of abstraction before they are implemented and verified at the device level. By following this methodology, QCA circuits can be developed and verified at a behavioral and structural level before they are implemented at a cellular level. Functional errors at these higher levels can quickly be detected and corrected so that when the quasi-adiabatic simulations are performed, the circuits will perform properly. By finding these errors early in the process, the overall time to create and verify complex devices should be decreased. In our research, we explain how this methodology was used in the design, layout, and simulation of a medium-sized QCA device that accepts a serial stream of data and monitors the data for a particular serial pattern of bits.

Information about the Authors: Steve Henderson is a senior in the College of Engineering. His major is electrical and computer engineering with a minor in mathematics. His research interests include VLSI design and programmable systems on a chip. His work of the above title has been published in IEEE Transactions on Nanotechnology. Jason Janulis is a senior in the College of Engineering. His major is electrical engineering with a minor in mathematics. His research interests include power electronics and control systems. His work of the entitled A Serial Bit Stream Analysis Using Quantum-dot Cellular Automata@ has been published in IEEE Transactions on Nanotechnology.

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Are Public Relations, Marketing, and Advertising Equal and Respected? An Examination of "Integrated" Communication

Shayla Howard and Colin McCormick

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The roles of marketing, advertising, and public relations illustrate how the three fields affect each other. The relationships are well documented in the public relations literature in particular. By examining the roles individually and the mutual interdependency, the sense of where the various disciplines intersect or do not connect is identified. In addition, the perception of these areas suggests that much needs to be done to clarify this situation. By examining the literature and interviewing key individuals, the idea of "integrated communication" not "marketing communication" suggests a distinct change in the approach to the concept. The research served as a basic clarification of the marketing, advertising, and public relations roles individually as well as the potential for a stronger relationships when connected with mutual respect.

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Shut up! Listen! Drive! A Study of Driving Distractions

Jessica Jenen, Andrea Mata, Joel Schreiber

Departmental Affiliation: Psychology, College of Arts and Sciences

We wanted to compare the effects on reaction time while listening to music, talking on a cell phone, and observe their interaction. We administered a pretest to measure experience and a posttest to measure the affect levels of the distractions in college students. We tested them for reaction times in responding either to lights or a buzzer in four different conditions: no distractions, listening to music, talking on a cell phone, and both distractions. We found that almost everyone normally listened to music in the car, but very few people normally talk on a cell phone while driving. There was a main effect of talking on a cell phone for the buzzer and an interaction for the light.

Information about the Authors: We performed this study for a research methods class. In our research, we found that many people looked at how individual distractions affected the driver in a certain way, no one compared the different distractions in relation to sight as well as sound.

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Topology of Complex Networks

Louis Kastens

Departmental Affiliation: Physics, College of Arts and Sciences

The topology of complex networks has become an important feature of a wide range of disciplines, from the construction of the world wide web and other extended communications networks to potential applications in understanding the biophysics of cellular level chemical interactions. We discuss the topology of scale-free networks as proposed by Albert and Barabási in 1999. We then proceed to explore a proposed method for increasing the clustering coefficients of scale-free networks while retaining a power-law degree distribution. We compare the predictions of this model with the predictions of other previously proposed models, as well as the topologies of observed networks.

Information about the Author: I encountered scale-free networks while doing research at the University of Notre Dame, and soon began my own project on

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scale-free networks for my senior thesis. I am a physics-math double major, and plan on attending graduate school in theoretical physics at Yale University this coming fall.

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Valparaiso University Student's View of Women Based on Academic Major and Gender

Jessica Kramer, Christina Lynch, Kacy Mullen

Departmental Affiliation: Social Work, College of Arts and Sciences

Women today are still affected by many societal prejudices in the workplace, at home, and when considering body image as well as female sexuality. It is therefore important to study the personal attitudes of college men regarding the value of women, as well as the way in which college women value themselves. The college years are often the time that people develop and mold a specific worldview that is retained for the rest of their adult lives. The aim of this research project was to explore whether the attitudes of college students regarding women's roles varied by sex and academic major. The sample consisted of male and female Valparaiso University undergraduate college students in selected academic programs. A survey was administered in upper-level courses of selected majors in order to ensure a sample of students committed to their respective fields of study. The survey questions were based on five important components of women's experiences: sexuality, body image, work, school, and home life, and measured the value that students placed on these five constructs. Each construct was measured by multiple item Likert scale subscales. The obtained results could be used in planning college course requirements in the area of gender studies.

Information about the Authors: All three authors are junior Social Work students who enjoy having heated discussions about politics and long walks on the beach. Christina, Jessica, and Kacy are also interested in studying vulnerable populations and advocating for those that often do not have a voice. People of color, women, and children often comprise the majority of vulnerable populations and it has always been important to the authors of this project to empower such people. Through their research, Jessie, Christina, and Kacy hope to provide information that will be useful to the development of campus curriculum in the area of gender studies, especially those that highlight the uniqueness, beauty, and strength of women.

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Client Appointment-Keeping Compliance

Valquiria Macedo-Potrzebowski, Christy Markstahler, Kristen Preze, Kimberly Sjaardema, Adelene Soto, Nadine Wade

Departmental Affiliation: Nursing, College of Nursing

Missed appointments are an increasing problem in health clinics providing care to underserved populations. As a result, this deprives individuals of health care, raises health care costs, and decreases efficiency of health care providers. This project explored the question what are the most efficient ways to promote patient

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compliance with keeping appointments. After conducting a literature search, articles from peer reviewed journals were critiqued for relevance to the research question. Analysis of research findings showed that variables studied included postcard or telephone reminders, providing transportation and childcare, reducing wait times and improving physician explanations. After reviewing all the articles, postcard reminders and providing transportation were determined to be most likely to improve appointment-keeping compliance. An evidence-based policy was devised to change nursing practice which included a patient questionnaire, the implementation of postcard reminders, and a volunteer transportation service. A pilot study was recommended to evaluate the cost-benefit of the proposed policy.

Information about the Authors: This group of six college of nursing students included traditional, accelerated, and RN-BSN seniors. As patient advocates we try to find ways to improve nursing care so that patients are better served. We recognize that solving clinical problems should use a Win-Win strategy. We look forward to implementing these ideas in our clinical areas after graduating.

Faculty Sponsor: Nola Schmidt

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Screening for Suppressors of Hyperbranching Mutants in *Neurospora crassa*

Elizabeth Rapa, Dr. Michael Watters

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Growth in filamentous fungi occurs at a tip which branches as it extends. *Neurospora crassa* is a filamentous fungus for which there are many known morphological mutants which affect the periodicity of branching. The col-16 mutant of *N. crassa* has a much greater branching frequency than the wild type and therefore grows more densely. Ultraviolet light was used on a col-16 mutant strain in order to induce mutations with the goal of finding suppressors that return growth to normal. Following mutagenesis, the samples were plated and the resulting colonies screened for those in which more wild type growth had been restored (i.e. those which had gained a suppressor mutation). The presence of a suppressor was confirmed using crosses, crossing the potential suppressor to the wild type. The reappearance of col-16 mutants among the progeny of these crosses confirms that the suspect strains indeed are suppressed (i.e. col-16/suppressor double mutants). The next goal is to separate col-16 from the suppressor to obtain strains which contain only the suppressor mutation. This will allow the further characterization of the suppressor mutation. This work was supported by a grant from the National Science Foundation.

Information about the Authors: Elizabeth Rapa is a senior biology major. She plans to attend the University of Michigan's School of Public Health in the fall. Dr. Michael Watters is an assistant professor of biology at VU.

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A Continuing Study of Light Variability In Proto-Planetary Nebulae

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For the past eight years Prof. Hrivnak has been heading a program designed to study the variability in brightness of proto-planetary nebulae. Proto-planetary nebulae are evolved stars that are between the red giant and planetary nebula stages of their lives. This past summer I worked here at Valpo with Prof. Hrivnak and Mr. Lu to further this research. I observed with the VU telescope on clear nights during the summer, taking images with our CCD camera. I then used an image-processing program to determine their brightness. By comparing these with data from previous years, it is clear that the stars vary in brightness. However, determining their periods of variation turned out to be more difficult; while all of the stars I have looked at vary, some display periodicity while others do not. Some have fairly well-defined periods, while others appear to have multiple periods, causing resonance in the light curves. For others it is obvious that they vary in brightness, but they do not showing signs of periodicity. I will summarize the current status of this project, including graphs of the variation of brightness with time.

Information about the Authors: I graduated from Southmont High School in Crawfordsville, Indiana. I have always been interested in physics and astronomy, so when I came to Valpo I chose physics as my major. Doing research in astronomy was also a logical step. I enjoyed the experience I gained over the summer, as well as what I learned by attending the American Astronomical Society conference in Atlanta this past January. I plan on working with Dr. Hrivnak again this summer.

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Construction of the Endcap Electromagnetic Calorimeter

Sarah Schlobohm

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The STAR detector at Brookhaven National Laboratory has two principle purposes. The first is search for the quark-gluon plasma, and extremely dense state of matter believed to have occurred 10 microseconds after the Big Bang. Its secondary purpose is to probe the source of the nucleon spin, specifically the contribution from gluons. Previous studies have shown that only about 30% of the nucleon spin comes from its quarks and antiquarks. The rest must come from the gluons that bind the quarks together and their relative motion. A significant upgrade to the detector, the Endcap Electromagnetic Calorimeter (EEMC), was installed this summer primarily with the spin physics program in mind. It will provide greater sensitivity to regions where a signal from quark-gluon and gluon-gluon scattering can be detected. Several students from Valparaiso University spent the summer assembling components at Valparaiso and installing them at the lab on Long Island.

Information about the Authors: Sarah Schlobohm is a senior at VU, majoring in physics and French. This will be her third year presenting at the VU URC. This poster was presented at the American Physical Society's Division of Nuclear Physics Fall 2003 meeting. Sarah hopes to attend graduate school in physics next year.

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Josh Silko

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Case Study, involving interviews with Law Enforcement officers. The interviews will try to attract State, County, Local, University Police and hoping for an interview with a federal agent. This way I can get a broad arrangement of points of view from all if not almost all branches of law enforcement. The general topic of the study will be to find, Factors causing stress in Law Enforcement Officers Life. Along with that the questions will ask how they deal with that stress and any coping strategies they have. This study has already been proven that law enforcement is a career filled with stress. I want to find out, what types of things cause stress in officer=s daily lives, and how they cope with that stress, and enables them to get the job done day in and day out.

Information about the Authors: Josh is a junior, majoring in Criminology.

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The Effect of Glutamine on Thermally Induced Heat Shock Protein Expression

Michael Sjoding, Christina Gnad

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Glutamine is an amino acid that is believed to protect cellular proteins from various stressful conditions. When cellular injury occurs, glutamine levels drop in the body. Studies indicate that supplementing a patient with glutamine reduces the frequency of infection. One of glutamine's protective roles occurs through a class of highly conserved proteins called heat shock proteins (HSPs). HSP expression is induced by an increased stress level in the cellular environment, and HSPs are thought to play a role in the immune response. It is hypothesized that increased glutamine levels in an organism will decrease the cellular temperature necessary for induced heat shock protein expression. This hypothesis is tested by treating rats with either glutamine or saline control at either 39 or 41 degrees Celsius. Hearts, lungs, and livers of each animal are harvested and HSP expression in tissues is analyzed by Western blotting. Initial experiments performed by David Kelley indicate that glutamine does reduce the temperature necessary for inducible HSP expression in heart tissue. Experiments are still being performed on lung and liver tissues.

Information about the Authors: Michael Sjoding is a Biochemistry major from Salem, Oregon Christina Gnad is a Chemistry and Biology double major from Mundelein, Illinois.

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A Study of the Cost Effective Design Storm for Swales

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A big task for any civil engineer is the design of a storm water conveyance system. This is because there are more options than meet the eye. While piping always

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seems to be a popular choice, one cannot forget about the possibility of swales.
Swales provide many advantages that piping cannot.

First of all, swales that are grass-bottomed have the ability to improve the storm water quality through infiltration and filtering. Swales can be used in place of curb and gutter in residential areas, providing a more natural looking neighborhood. If swales are maintained, they can have an indefinite lifespan. There are also concrete swales. These do not provide the same storm water quality improvements as the grass swales, but can still be used effectively for drainage purposes.

The purpose of this project was to analyze the cost of swales in comparison to their return period. A variety of hypothetical locations were chosen for watersheds, and then a swale was designed for a variety of storm sizes. Swales should not be used for large watersheds, but it was evident that designing for a storm greater than the 25-year does not increase the price of the swale that much.

Information about the Authors: December 2003 graduate submitting work from the summer of 2003. Graduated with a BSCE.

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American Perspectives on the Current Health Care Situation

Amy Stark

Departmental Affiliation: Sociology and Criminology, College of Arts and Sciences

With much attention focusing on the health care system, it is important to look to American citizens for their perspectives. What is the ideal American health care system? What is the current largest problem? What ought the role be of the government be in the health care system? These questions are not ones that can only be answered by politicians; all Americans have opinions. Through a survey, American perspectives on the health care situation are analyzed and reveal different trends. The overall responses are broken down and analyzed for differences between men and women and differences between age groups. The problems with the system are not going to solve themselves; serious work and changes must be done.

Information about the Author: Amy Stark is a sophomore from St. John, Indiana. She is active around campus in V.O.I.C.E., the volunteer group on campus, and Student Senate. She is majoring in Biology and Political Science and is a part of the Honors College. She eventually hopes to earn her Doctorate in genetics and do genetic research and teaching.

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From Bad to Worse: The Ordeal of Imperial and Soviet Russian Penal Systems

Benjamin J. Stellwagen

Departmental Affiliation: History and Humanities, Christ College

Authoritarian regimes dominated nineteenth- and twentieth-century Russia. Both Imperial autocrats and Soviet communists implemented means of control to suppress public opposition and order a society for their own ends. Imperial controls included prison sentences, exile to Siberia, and forced labor, where convicts

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fell victim to hunger, disease, and vice. Soviet controls were similar, additionally recognizing the economic potential of its often Apolitical@ prisoners. The Soviet Union significantly intensified the destitution, horror, and mass murder that began under the tsars. Appearing as a comparative study in four parts, this project analyzes the administrative penal reforms of the two governments and how two centuries of abuse and tyranny psychologically affected their victims.

Memoirs, traveler accounts, commission reports, and a wealth of historiography comprise this study=s source material. In evaluating the differences between corrective and retributive punishments, this study uses witness accounts to address the psychological implications of historical changes to Russian penal policy. By perpetuating the archaic and arbitrary means of control found in Imperial Russia, the Soviet Union further erased the line between victim and perpetrator. Was Imperial Russia a prelude to atrocity, then? Or did the Soviet agenda act independently of its forefathers in reigning tyrannously?

Information about the Author: Benjamin J. Stellwagen is a senior history and humanities major. He intends to study nineteenth-century Russian cultural history in graduate school. His interest in Russian history began with a cultural appreciation for its classical music and literature, specifically the works of Rachmaninoff, Tchaikovsky, Dostoevsky, and Tolstoy. The project's motivation followed his reading of Dostoevsky's Imperial Russian prison memoirs, *The House of the Dead*, and a desire to compare it to recent literature on Stalin's Gulag.

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Dirty Soil: An Analysis of Pesticide Residual Concentrations in Soil Samples from Valparaiso University.

Kristina Wehmeyer

Departmental Affiliation: Chemistry, College of Arts and Sciences

Pesticide residues can cause serious health defects in soil inhabiting mammals, as well as in humans. Several pesticides are sprayed on campus every year. Although each chemical is accompanied by precautionary procedures, little is known about how long these residues stay in the soil.

I believe that there are residues present in the soils throughout the year, although not in high enough concentrations to effect humans. Should high residue levels be found on campus, the next steps would be testing if the concentrations have a negative effect on soil inhabiting mammals, and what measures can be taken to reduce these levels in campus soils. Soil samples will be taken from eight locations on-campus and two locations off-campus, which will serve as controls. A one-inch and six-inch soil core will be taken from each site. The one-inch core will test the concentration of residuals in the top layer of the soil while a composite of the six-inch layer will be taken to determine the concentration of residuals through the soil layers. A water-leaching process will be used to remove the residues from the soil samples. Although no results have been currently obtained, experimental data is anticipated to be available in March.

Information about the Authors: I performed a similar experiment in high school where I tested the concentrations of heavy metals in a local stream. I took soil and water samples, tested for heavy metals, and discovered that the metal

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concentrations were well above EPA regulations. My class did an extensive research project on the site and sent our results to the EPA, who then did a follow-up study on the area for three years.

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Higher Education in China: A Stepping Stone Towards Success

Laura Whitman

Departmental Affiliation: Political Science, College of Arts and Sciences

Education in China has traditionally been highly valued among all sectors of society and, despite a change in sentiment during the country's socialist years, education continues to be viewed as the primary way to climb the social ladder. Increasingly this pathway to success includes the need for a college education and has resulted in a record number of students attending institutions of higher education. The question my research will explore centers on to what extent children from rural areas aspire to attain a college degree, whether they have adequate access to university enrollment, and whether those who do manage to go to college ever return to the rural areas or, instead, if higher education is causing any sort of brain drain from the countryside. This information will be gathered through a ten-day session of field research in the province of Zhejiang utilizing surveys, interviews, and observation.

Information about the Authors: Both as a political science major and former participant in the Reutlingen study abroad program, I have been exposed to the governments and policies of many nations, leading me to a broad interest in comparative politics. Also, as a student in general, I find it fascinating to learn about what motivates other students to go to college and the various pressures they face. Also, exploring what kind of disadvantages students from the rural areas may face in achieving the same sort of educational opportunities as urban students is an area that I am currently studying in my Politics and Policy class as related to the inequalities found within our own public education system. I hope one day to be able to have a significant impact on such policies concerning education and other public services.

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The "Intermediaries" - the Role of Chinese Rural Entrepreneurs

Cynthia Willuweit

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Integration between rural and urban economies is occurring at a rapid rate throughout mainland China. Yet, how are these changes going to affect rural economies? How has the rural economy been impacted by increasing links with urban areas? By examining differing types of entrepreneurs within rural and urban settings, one will be able to observe how this integration takes place in private economy. The four distinct types of entrepreneurs considered in this study are those with urban and rural businesses, returnee migrants, migrants from other areas, and life-long residents of the specific rural area. Through administering surveys and conducting interviews with these business owners, it will be shown that

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linkage between rural and urban areas through entrepreneurs positively affect rural economies.

Information about the Authors: The rapid rate of industrialization in East Asia continually fascinates me throughout my collegiate career. Given the opportunity to research such an exciting and vital topic, namely entrepreneurial roles, in China provides an invaluable experience. As a political science major graduating in May, I hope to pursue this fascination as I begin my professional life by teaching English in Korea next year. This research gives me the opportunity to explore different facets within Asian culture.

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Relationships in Reported Cases of Sexual Assault between Victims and Offenders

Julie Yingling

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The relationships between offenders and victims in reported cases of in a sexual assault is crucial to predicting and deterring future incidents of sexual assault. Correlating the characteristics of these variables will determine the readiness with which the victim reports the victimization. These findings will benefit society to conclude which circumstances cause victims to be more willing to report a sexual offense case based on the victim's relationship with the offender. The Caring Place provides confidential services and free shelter for victims of domestic violence and sexual abuse, collecting numerous pieces of information on the victim when a report is filed, ranging from the ages of the victim and offender, the location of the assault, to the period of time the victim waited before reporting the crime. The sample consists of data collected from closed cases reported from the Lake, Porter and Starke Counties to the Caring Place in Valparaiso, IN. These cases are dated from 2003 back to 1998. Roughly 20 variables have been collected and entered into an SPSS program for analysis. The coded variables have been run through the statistical analysis and correlated to determine any and all relationships from the data.

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The Cultural Impact of Death Represented Through Gravestones

Matthew Baer

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The Cultural Impact of Death Represented Through Gravestones By Matt Baer
This visual research project is a qualitative study on the cultural perspectives of death through the symbolism of cemeteries and gravestones. Gravestones have been placed on burial sites for thousands of years. This research project's goal is to find the significance of gravestones and how they represent the way our society deals with death. This case study is the examination of the grave stones at the Valparaiso Cemetery. The data gathered are 30 photographs. Each photograph is a gravestone or mausoleum. The photographs were picked on ten different characteristics, each gravestone having at least one. The ten characteristics are family role, gender, vocation, religious incantations, age of death, date of

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burial, positioning of grave, size of gravestone, written text on gravestone and military service.. I was looking for characteristics that represented the person buried. I wanted to see what the gravestones could tell about that person. I coded the pictures into 12 different themes to try and find the relationships that each gravestone has with one another. Once I started seeing similarities between different gravestones I wanted to link individual characteristics and apply them to society as a whole

Information about the Authors: My name is Matt Baer, and I am a sophomore that attends Valparaiso University. I am from Wasilla, Alaska and my major is criminology. My future goals are either to attend law school or go into some sort of federal law enforcement.

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