

2013

Graduate Showcase 2013: Education for the Future

The Graduate School, Grand Valley State University

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**Graduate Showcase 2013:
Education for the Future**

Presented by:

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Welcome to the Graduate Showcase 2013: Education for the Future

It is with great pleasure that we welcome you to Grand Valley State University's third annual Graduate Showcase. The theme "Education for the Future," reflects Grand Valley's commitment to the success of our students and our belief in graduate education as key to the ongoing well-being of our state and country.

This showcase offers graduate students a unique opportunity to present their research, scholarship, and professional experiences. Each of the graduate programs at GVSU nominated students to take part in this event, representing the breadth, variety and rigor of graduate study available here.

To those who may be considering enrollment in a graduate program, we invite you to tour the poster presentations and ask questions about graduate study, scholarship, and research. Our current graduate students who are presenting will be able to provide you with a first-hand perspective on their experiences at GVSU.

We appreciate the time and energy devoted to this event by our participating students, as well as by their graduate faculty mentors and program directors. We also extend our thank you to the many people who contributed to the success of this event including: Robert Smart, John Stevenson, Jennifer Palm, Irene Fountain, Derek Knight and Heather De Nio.

As GVSU continues to create a lasting legacy, we look forward to the future success of our institution and our graduate students. We hope you enjoy the Graduate Showcase. Thank you for participating in this event!

Sincerely,



Thomas J. Haas
President



Gayle R. Davis
Provost and Vice President for
Academic and Student Affairs



Jeffrey A. Potteiger
Dean, Office of
Graduate Studies

Richard M. DeVos Center – April 16, 2013

3:30 – Poster Presentations and Information Table
(Hager-Lubbers Exhibition Hall)

5:00 – Introduction from Dean Potteiger & Welcome from Provost Davis
(Charles W. Loosemore Auditorium)

Keynote Speaker: Dr. Paul Vanderburgh, University of Dayton
“Graduate School: The Training Ground for Research Consumers”

5:30 – Poster Recognition presented by Dr. Smart, Dean Potteiger, and
Associate Dean Stevenson
(Charles W. Loosemore Auditorium)

**Biography: Dr. Paul Vanderburgh, Associate Provost and Dean of Graduate
Studies, University of Dayton**

Dr. Vanderburgh is the Associate Provost of Graduate Academic Affairs and Professor of Health and Sport Science at the University of Dayton, Dayton, OH. An exercise physiologist, his research in allometric modeling of human performance has impacted the way the United States Military assesses both occupational and health-related fitness. Dr. Vanderburgh holds a bachelor’s degree in aerospace engineering from the U.S. Military Academy at West Point and a doctorate in applied physiology from Columbia University.

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Biology

(College of Liberal Arts and Sciences)

EFFECTIVENESS OF UTILIZING VOLUNTEERS FOR A LARGE SCALE TELEMETRY STUDY ON BROWN TROUT IN THE AU SABLE RIVER, MI.

Giordano, B., Luttenton, M.; Biology Department, College of Liberal Arts and Sciences.

PURPOSE: Radio telemetry has been used effectively to track trout movement and determine habitat use. However, telemetry studies are labor intensive and tracking large numbers of fish over wide regions during both day and night time is imperative to gain insight into the organism.

METHODS: During 2012, we initiated a two-year telemetry study to track 35 different brown trout (*Salmo trutta*) spread over the Mainstream, South Branch, and North Branch of the Au Sable River, Michigan. Fish are being located at least every three days, in both day and night time during the summer, and every week during the fall. We have relied on a number of volunteers from local conservation groups as well as the general public to assist, particularly on the South and North Branch. Volunteers are from the local area, state, and out of state and have logged over 500 hours since July. Volunteers often have good technical skills and with modest initial training by individuals with telemetry experience, have become proficient at tracking trout. These volunteers also have exchanged volunteer-to-volunteer training, in order to increase the number of participants, and effectively increase the interest in the project. Fish tracking has been successful and data collection has been consistent. **CONCLUSIONS:** As funding to support field work becomes less available, enlisting committed volunteers may provide much needed support for future fisheries research.

Biology

(College of Liberal Arts and Sciences)

POPULATION STATUS OF LAKE STURGEON IN THE MUSKEGON RIVER, MI.

Harris, B., and Ruetz, C.; Biology Department, College of Liberal Arts and Sciences.

PURPOSE: The Muskegon River is a Lake Michigan tributary that supports a remnant population of lake sturgeon (*Acipenser fulvescens*). We have assessed the status of this population since 2008. **METHODS AND**

MATERIALS: Each spring, adult lake sturgeon were sampled via gill netting in Muskegon Lake and boat electrofishing in the Muskegon River. Juvenile lake sturgeon were sampled with gill nets in Muskegon Lake each year during August - December. Finally, we sampled larval drift in the Muskegon River to assess reproductive success of the population. **RESULTS:** During 2008 – 2012, we captured 205 unique individual lake sturgeon. Age-structure

analysis of captured lake sturgeon (n = 160) indicates 26 year classes are represented among captured individuals, with the age of the majority (93.1 % of aged fish) of individuals being 21 years or less. Seventy-eight unique adult lake sturgeon (range = 103.5 – 191.0 cm total length [TL]) were captured during this study; captures ranged from 9 to 25 adults on any given year, which suggests the number of adults in the annual spawning run is relatively low. Larval lake sturgeon were successfully captured in 2009 - 2011 (n = 50; range = 13.0 - 21.5 mm TL). Juvenile lake sturgeon were captured each year of the study in Muskegon Lake (n = 127; range = 23.1 to 98.2 cm TL). **CONCLUSIONS:** Our results suggest the spawning run in the Muskegon River is small, with evidence of natural reproduction.

Biomedical Sciences **(College of Liberal Arts and Sciences)**

THE RELATIONSHIP BETWEEN MATERNAL CHILD FEEDING PRACTICES AND CHILD'S BMI AND CHILD'S DIETARY RESTRAINT IN MEXICAN-AMERICAN FAMILIES OF GRAND RAPIDS, MI. Fluegel, L.E.;
Department of Biomedical Sciences, College of Liberal Arts and Sciences.

BACKGROUND: Research in Caucasian girls has shown a relationship between mother's restrictive feeding practices and girl's eating in absence of hunger and greater body mass index (BMI). Hispanic children disproportionately suffer from obesity, yet there are limited studies on this relationship. **PURPOSE:** To examine the relationship between maternal feeding practices (MFP) and child's BMI; to explore effect of demographics and culture and child's BMI. The hypothesis that children's BMI is positively correlated with dietary restriction and monitoring; and negatively correlated with pressure to eat was tested. **SUBJECTS:** First or second-generation Mexican-American women and their children 5-15 years old (one child:mother pair per family; n=40) were recruited from churches in Grand Rapids, MI. **METHODS & MATERIALS:** Questionnaires were administered to mothers for demographic, acculturation (BAS) and child-feeding (CFQ) information. Mothers' and children's BMI (kg/m²) were calculated from measured height and weight. **ANALYSES:** Pearson correlation analyses were used to explore BAS, child's BMI and MFP associations. ANOVA was used to determine the association between MFP, mother's BMI and child's BMI. **RESULTS:** Acculturation was not significantly associated with child's BMI (p= 0.391). Maternal restriction (p=0.040) and monitoring (p=0.022) were positively associated with child's BMI, while pressure to eat (p=0.022) was negatively associated with child's BMI. These relationships were attenuated with mothers' BMI in the model. **CONCLUSION:** The level of mothers' acculturation was not associated with child's BMI. MFP was associated with child's BMI, however mother's BMI had a greater influence. These findings

suggest interventions in MFP may not impact on the childhood obesity in Hispanics.

Biomedical Sciences (College of Liberal Arts and Sciences)

CRYSTAL STRUCTURE AND KINETIC CHARACTERIZATION OF THE CLASS D CARBAPENEMASE OXA-23. Klinger, N.V., June, C.M.¹, Ramey, M.E.¹, Bonomo, R.A.², Powers, R.A.¹ and Leonard, D.A.¹; Department of Biomedical Sciences, College of Liberal Arts and Sciences.

¹*Department of Chemistry, College of Liberal Arts and Sciences*

²*Research Service, Louis Stokes Cleveland Department of Veterans Affairs Medical Center, Cleveland, OH 44106*

PURPOSE: OXA-23 is a class D β -lactamase found in clinically problematic strains of bacteria such as *Acinetobacter baumannii*. These enzymes hydrolyze β -lactam antibiotics, conferring resistance upon them. OXA-23 was the first class D enzyme reported with activity against carbapenem antibiotics and was thus used to define a new class of β -lactamases, the carbapenem hydrolyzing class D β -lactamases (CHDL). OXA-24, a better-studied CHDL, shares > 60% amino acid identity with OXA-23. In this study, we compared the efficacy of OXA-24 and OXA-23 against a variety of β -lactam substrates. These enzymes share similar kinetic profiles, but OXA-23 appears to have greater affinity for advanced generation cephalosporins than OXA-24. To help explore these differences, we examined OXA-23 via X-ray crystallography and here report the first structures of wild type OXA-23 as an apo enzyme and bound to a β -lactam substrate (doripenem).

RESULTS: As predicted, OXA-23 shares a very similar active site topology with OXA-24 and includes the same residues thought to be responsible for β -lactam hydrolysis. Similar to OXA-24, OXA-23 has an active site bridge comprised of residues F110 and M221 that are responsible for the enzyme's extraordinarily tight carbapenem affinity (< 50 nM). **CONCLUSION:** A comparison of the OXA-23 and OXA-24 structures reveals a shift in the loop between the b5-b6 sheets that is likely responsible for the increased affinity for cephalosporin substrates in OXA-23.

Biostatistics (College of Liberal Arts and Sciences)

OUR PSM BIostatISTICS INTERNSHIP AT SPECTRUM HEALTH.

Dietsch, J., Kett, A.; Statistics Department, College of Liberal Arts and Sciences.

PURPOSE: Practicing biostatistics in a professional setting is an integral part of the PSM biostatistics degree and a requirement for graduation. At the Spectrum Health Research Department we were able to develop our

statistical consulting skills in a health care setting. **CHALLENGE:** As the main consultants for the research department, we had to perform our duties independently and with minimal outside assistance. This challenged us to utilize our knowledge and research skills to be able to solve the problems that we were given. **EXPERIENCE:** We learned new statistical skills such as factor analysis, survey development, and new SAS techniques. Additionally we were able to better develop our skills with sample size calculation and power analysis. We had the opportunity to work on projects from many departments and in the process improved our communication with health care professionals and organization of various projects through meetings and other forms of communication. **OUTCOME:** We were able to assist in writing the protocol and sample size portions of protocols for several studies that are in the process of starting data collection. We performed data analysis for projects that had completed their data collection and were in the process of publishing as well. On a professional level we were able to develop our communication skills, both in person and remotely. **IMPACT:** As a professional and applied program, an internship experience like this was a vital experience to prepare us for work after graduation. We were able to take the techniques from our class one step further while putting them into practice with data and input from researchers. We also faced entirely new situations and were able to learn new techniques beyond our class work.

Biostatistics

(College of Liberal Arts and Sciences)

INTEGRATION OF GVSU BIOSTATISTICS IN THE MENTAL HEALTH FIELD. Hunter, O.C., Shaffer, B.S.; Statistics Department, College of Liberal Arts and Sciences.

PURPOSE: Professional Science Master's in Biostatistics program requires an internship as part of the program requirements. The proposed poster showcases the completed internship projects from Community Mental Health at Ottawa County (CMH). Throughout the internship, we were able to apply statistical methods learned in the curriculum on real world data. The internship was beneficial for interns to assist CMH in continuing their pursuit of better evidence based decision- making. **CHALLENGE:** The challenges that we encountered were learning how to use lay terms to explain statistical concepts and results, and retrieving data from a database (Crystal Report) with which we were not familiar. **EXPERIENCE:** Data sets related to mental health, such as performance indicators and costs of running mental health programs, were cleaned, analyzed, interpreted, reported, and presented to leadership and social workers at CMH. **OUTCOME:** We learned how to effectively deliver statistical terms in lay terms, write detailed statistical reports, and prepare executive summaries that impacted decision-

making for the organization. We also had many opportunities to learn various methods of delivering results using Excel, enabling those who were not familiar with statistical techniques to make better use of the information. **IMPACT:** The internship at CMH provided us the opportunity to interact with people who are not familiar with statistics and apply everything we learned from the curriculum to real world data. The mentorship we received helped guide us to explore data creatively and efficiently, challenges that we will respond to in future application of our skills.

Business Administration (Seidman College of Business)

MANAGERIAL COST ACCOUNTING IN HEALTH CARE: AN APPLICATION OF TIME-DRIVEN, ACTIVITY-BASED COSTING TO AN OUTPATIENT CLINICAL ENVIRONMENT. Clark, J. R.; Business Administration, Seidman College of Business.

PURPOSE: Unbridled increases in the cost of healthcare in the United States have brought renewed and deserved scrutiny upon the costs of delivering care, but efforts to reduce these costs are misguided because of a fundamental lack of understanding on the part of the healthcare organization as to the actual costs of delivering care. This project attempts to provide a better understanding of the cost of delivering care by applying the Time-Driven, Activity-Based Costing model to a large healthcare organization. **SUBJECTS:** The subject of the study is the Metro Health Medical Group, a 12-practice outpatient care organization in the West Michigan area. This organization employs 50 physicians, and several hundred support staff, and cares for 130,000 patients in the region. **METHODS AND MATERIALS:** This study uses data collected from analysis of data from the organization's electronic medical records system, time studies, interviews, and observations. **ANALYSES:** The study applies the Time-Driven, Activity Based Costing model, pioneered by Dr. Robert S. Kaplan of Harvard Business School to the unique environment of an outpatient primary care facility. **RESULTS:** The application of the model provides a means to compute the actual costs for each activity in the process of delivering care. This information is used to determine the cost of caring for specific patients over time, as well as specific populations and specific disease states. This data is also used to calculate capacity utilization and expose opportunities for improved efficiency. **CONCLUSIONS:** A method to determine the cost of delivering care at the population, patient, procedure, or activity level is requisite to a successful effort to reduce those costs. Time-Driven, Activity-Based Costing can be successfully applied to a healthcare organization, providing meaningful and actionable results.

HEALTH CHECK: ANALYZING TRENDS IN WEST MICHIGAN 2013.

Jabaay, P.; Business Administration, Seidman College of Business.

PURPOSE: Health Check provides an ongoing trend analysis of three major issues: Knowledge Foundations, Health Care Trends, and Economic Analysis.

SUBJECTS: The focus of the study is on a four-county area - Kent, Ottawa, Muskegon, and Allegan (KOMA). **METHODS AND MATERIALS:**

Understanding Knowledge Foundations provides information on the supply of future workers in healthcare. Analysis of graduation rates and jobs data details supply and demand for the local industry; medical patents give insight to local innovation. Understanding Health Care Trends is beneficial for preventative measures and areas to focus efforts on. The metrics used to monitor these trends include demographics, risk profiles, diseases, and overall health status. Economic Analysis provides comparable results to benchmark the industry's economic growth in the region. The comparable data pieces include other medical cities similar to Grand Rapids, a hospital survey analysis, and cost analysis of major medical conditions with emphasis on diabetes. **ANALYSIS:** Data were collected and weighted accordingly for the specific region of interest, in this case KOMA, from several databases and governmental resources, and from Priority Health and Blue Cross Blue Shield. **RESULTS:** Education facilities are graduating students with healthcare degrees at a rate that will supply the market needs for the foreseeable future; in some cases, there is a surplus of graduates for specific programs. Medical patents are remaining steady thanks in part to the Van Andel Research Institute. Health care trends in West Michigan fall in line with national trends, some instances are more promising than others. As a community, obesity and diabetes is on the rise, along with asthma. Obesity is the largest challenge our healthcare system faces in the future, and the changing demographics will compound the issue. As an industry, the healthcare system in West Michigan is growing. This is a result of either an unhealthier population, a sign the industry is drawing from a greater geographic area, or an increase in healthcare access. In terms of being a medical tourist location, Grand Rapids is gaining ground, but still trails behind Cleveland. It is also cost effective to conduct all tests and evaluations on diabetes patients during upon an initial examination. **Conclusion:** It is apparent the healthcare system in West Michigan is alive and well, and will continue to meet the needs of the local population. The labor force is strong; the educational structures are intact; the demand for services will continue to grow as the baby boomers continue to age; diabetes and obesity will continue to plague the community and health care systems. It is well documented

that as we age past 40, our body composition changes over time by replacing muscle with fat. This physiological effect will be a major contributor to the deterioration of the quality of life of an aging population without education, community involvement, and accessible healthcare.

Cell and Molecular Biology (College of Liberal Arts and Sciences)

LC-MS/MS ANALYSIS OF NEUROTRAUMA EICOSANOID LEVELS. Pineda, J.M., Strauss, K.I.; Cell and Molecular Biology Department, College of Liberal Arts and Sciences.

PURPOSE: The Professional Science Master's degree requires all students to complete an internship prior to graduation. The internship provides an opportunity to take what is learned in the classroom and laboratory and apply it to an real world experience. Internships provide feedback on techniques, new learning opportunities and a chance to network with people of the scientific community. **CHALLENGE:** 1.7 billion people are estimated to sustain a traumatic brain injury (TBI) annually, which can lead to death or permanent disability. The neurotrauma research of TBI, done by Dr. Kenneth Strauss's lab, hopes to find a way to treat patients by better understanding the biochemistry of the brain following injury. **EXPERIENCE:** As an intern for the MSU neurotrauma research laboratory, I was tasked with the analysis of rat and mouse brain eicosanoid levels following TBI. Eicosanoids are chemicals that have inflammatory and anti-inflammatory properties within the brain. The analysis of these chemicals was done using a Liquid Chromatography-Mass Spectrometer, a biochemical machine that allows for the study of small chemicals based on electronic charge and molecular weight. **OUTCOME:** My internship research has aided in the elucidation of how the eicosanoid family of chemicals impacts TBI. This and previous work will be submitted for scholarly publication in the future. **IMPACT:** My internship broadened my in-site of neuroscience, biochemistry and academic research of a prominent university. I was also had the opportunity to forge new connections and increase my networking in the biotechnology industry.

Cell and Molecular Biology (College of Liberal Arts and Sciences)

INTERACTION OF THE MID1 PLECKSTRIN HOMOLOGY DOMAIN WITH THE MAJOR CONTRACTILE RING ELEMENT, F-ACTIN OF THE FISSION YEAST SCHIZOSACCHAROMYCES POMBE.

Testori, M.J., Kovar, D.R., Clifford Hart, D.M.; Cell and Molecular Biology Department, College of Liberal Arts and Sciences.

PURPOSE: Cancer is a disease of uncontrolled cell division. Cell division in

eukaryotic cells occurs by the formation of a contractile ring, predominantly composed of filamentous actin (F-actin). During mitosis, actin filaments polymerize to form anti-parallel rings at the medial plane of the cell that constrict causing the cell membrane to pinch and divide. Proteins that regulate this process are essential because dysregulation can lead to uninhibited cell growth and division. In fission yeast, the protein Mid1 functions as a scaffold to recruit regulatory proteins required for actin filament formation and simultaneously anchors the contractile ring at the cell division site. The Mid1 Pleckstrin Homology (PH) domain can bind lipids in the membrane, but direct binding of the PH domain to other contractile ring proteins has not been described. Since F-actin and Mid1 are crucial components for contractile ring formation and proper cytokinesis, it is important to clarify their interaction. **SUBJECTS:** Purified Mid1 PH domain and F-actin proteins were used for in vitro studies. **METHODS:** Binding between F-actin and the Mid1 PH domain was confirmed by cosedimentation assay. The significance of the interaction was analyzed by spontaneous actin polymerization assays and rhodamine-phalloidin staining. Results and **CONCLUSIONS:** The PH domain inhibited F-actin polymers from forming in a dose-dependent manner. This phenomenon was confirmed by rhodamine-phalloidin staining of actin filaments in the presence of the PH domain. The inhibitory effect of the Mid1 PH domain on F-actin may reveal an important regulatory event for actin polymerization during contractile ring assembly.

Communications

(College of Liberal Arts and Sciences)

EGYPTIAN DIASPORAS, SOCIAL MEDIA, AND THE 2011 EGYPTIAN REVOLUTION: HOW EGYPTIANS LIVING IN SAUDI ARABIA USED SOCIAL MEDIA DURING THE REVOLUTION. Al-sebaei, M.; School of Communications, College of Liberal Arts and Sciences.

PURPOSE: The number and size of diasporas in the Middle East is increasing. However, scholars have not explored how diasporic communities in the region are engaged with recent political changes brought about by the Arab Spring. This study reports the results of interviews with Egyptians living in Saudi Arabia during the 2011 Egyptian Revolution in an effort to discern how this diaspora used social media platforms during the revolution. **SUBJECTS:** Egyptians in Saudi Arabia are the subjects of this study. **METHODS:** Interviews were conducted. **ANALYSES:** Grounded theory is used to analyze the interviews. **RESULTS:** Social media was a proper platform for the Egyptian diaspora to collect new political information and connect with people in Egypt. **CONCLUSIONS:** Social media provided a proper platform for the Egyptian diaspora to collect new political information and connect with people in Egypt. This Egyptian diaspora used

social media to sustain strong ties with people in their homeland, increase their sense of political participation, and confirm political activity in their homeland.

Communications

(College of Liberal Arts and Sciences)

HIGH SCHOOL POLICY DEBATE AS AN ENDURING PATHWAY TO POLITICAL EDUCATION: EVALUATING POSSIBILITIES FOR POLITICAL ACTION. Zwarensteyn, E.C.; School of Communications, College of Liberal Arts and Sciences.

This thesis addresses the role competitive high school policy debate participation has on key developmental markers of political learning. As identified by the Carnegie Foundation's Political Engagement Project (PEP), political learning includes political knowledge and understanding, political identity, and the development of political skills. Based in interviews with former high school debaters, the results of this study suggest there may be a transformative, politically enduring and engaging experience surrounding policy debate. Using grounded theory to extract analysis of debaters' experiences, this study demonstrates how sustained competitive high school policy debate experience directly advances political learning and should be a tool to engage students politically. Debaters tend to focus on issues rather than partisan politics, consider themselves well informed on issues of national and international importance, incorporate reflexive political identities, feel their daily lives and activities manifest political actions, and have increased comfort levels employing political advocacy skills including the articulation and design of political argumentation. To respond to a paradoxically increasing partisan and apolitical world, policy debate encourages high school students to access critical concepts of political engagement.

Computer Information Systems
Computing)

(Padnos College of Engineering and

MAPPING OF UML DIAGRAMS TO EXTENDED PETRI NETS FOR FORMAL VERIFICATION. DeVries, B.; School of Computing and Information Systems, Padnos College of Engineering & Computing.

PURPOSE: UML Statechart Diagrams are the industry standard for modeling dynamic aspects of system behavior. However, other behavioral models, such as extended Petri Nets, are significantly easier to analyze formally. This research project creates methods of converting previously unconvertible features of UML Statechart Diagrams to extended Petri Nets to allow for additional analysis of UML Statechart Diagrams.

PROCEDURES: Algorithms are introduced that convert specific UML

Statechart Diagrams to a novel behavioral construct, Swim Lane Petri Nets, and subsequently to extended Petri Nets as well as direct conversions to extended Petri Nets. Algorithms are also introduced to convert both Swim Lane Petri Nets and extended Petri Nets to the PROcess MEta Language (PROMELA) to allow for detailed formal verification using the SPIN model checker. **OUTCOME:** Formal definitions of the behavior models, XML representations of these models, and algorithms for conversions between the models are presented with a focus on traceability between translated models to allow for backtracking the results of formal analysis in the SPIN model checker to the original behavioral construct. **IMPACT:** While UML Statechart Diagrams are the industry standard and provide an intuitive representation of behavior models, formal analysis is limited and difficult. Providing a method of translation to extended Petri Nets, which are more analyzable but less intuitive, adds significant practical value the use of UML Statechart Diagrams in model based development.

Criminal Justice

(College of Community and Public Service)

THE EMERGENCE OF MENTAL HEALTH COURTS. Edgerle, R.; School of Criminal Justice, College of Community and Public Service.

The emergence of mental health courts in the 1990s is due to the high prevalence of mentally ill persons within the criminal justice system.

PURPOSE: This paper conducts a review of literature about mental health courts (MHC), the history and current societal reactions of mental illness, and other founding problem-solving courts which paved the way for the demand and emergence of MHCs. **METHODS:** The intentions and shortcomings of the deinstitutionalization of persons with a mental illness

(PMI) will be discussed to better understand one of the contributing factors to the high prevalence of PMI in the United States' criminal justice system.

RESULTS: Therapeutic jurisprudence, accountability, and community justice are the three paradigms of problem-solving courts and they will be discussed in relation to three problem-solving courts, as well as mental health courts. Problem-solving courts that follow one or all three paradigms create an opportunity to address the underlying issues and social problems that are causing a strain on the criminal justice system. **CONCLUSIONS:** Using the three paradigms in mental health courts opens the doors for the criminal justice system to work with the mental health system to reduce recidivism and increase the quality of life of PMI while providing safety for the involved communities.

**AN ADOLESCENT SEX OFFENDER TREATMENT PROGRAM:
RECIDIVISM RATES WITH IMPLICATIONS ON PERSONALITY TRAITS.**

Kosina, A. M.; School of Criminal Justice, College of Community and Public Service.

PURPOSE: In 1988, the Kent County Juvenile Court (Grand Rapids, Michigan) implemented an innovative program for juvenile sex offenders.

SUBJECTS: This program, the Adolescent Sex Offenders Treatment Program (ASOTP) was designed to provide comprehensive treatment services to this population.

METHODS: The presenters will discussed the ASOTP and review current research designed to address issues of sexual offending as it pertains to personality types and recidivism rates.

RESULTS: This presentation is designed to assist mental health providers, juvenile court workers and judges in assessing the needs of adolescent sex offenders in order to provide comprehensive treatment services to this population.

Education-Higher Education

(College of Education)

**UNDERSTANDING HIGH-ACHIEVING AFRICAN AMERICAN STUDENTS:
A QUANTITATIVE STUDY AT GRAND VALLEY STATE UNIVERSITY.**

Gipson, J. A.; Higher Education-College Student Affairs Leadership, College of Education.

PURPOSE: Many obstacles often stand in the way of collegiate success for students who identify as African American (Mauk & Jones, 2006). The purpose of this study was to investigate characteristics of high-achieving African American students.

SUBJECTS: A census population of 353 undergraduate students identifying as African American were invited to voluntarily participate in this study.

These students possessed sophomore or higher status and maintained a GPA of 3.0 or greater at the time of survey distribution. 101 students completed the survey resulting in a response rate of 28.6%.

METHODS: The survey instrument was developed by the researcher with assistance from the Statistical Consulting Center. An invitation to participate was sent to the target population by Information Technology and the link remained active for ten days.

ANALYSIS: Due to the nature of the survey, descriptive statistics were utilized to report the majority of results. However, a Chi Square Test of Independence with an alpha level of .05 was utilized to determine significant and non-significant relationships, where applicable.

RESULTS: Statistically significant findings include that: males are underrepresented within the high-achieving population; students who live within one hour of GVSU are more likely to return home more frequently; and within the high-achieving group, GPA

directly relates to considering leaving GVSU. Many additional findings are also discussed. **CONCLUSIONS:** Expanding upon existing research, results from this study suggest that high-achieving African American students are considering leaving GVSU at higher rates when compared with all African American students. Additional expansions and affirmations of existing research are also discussed.

Education-Literacy Studies

(College of Education)

MEETING ENGLISH LANGUAGE LEARNERS' ACADEMIC NEEDS THROUGH TEACHING TRAINING: A MULTICULTURAL APPROACH.

Gomez, M.; Literacy Studies-Teaching English to Speakers of Other Languages, College of Education.

Research shows that teachers are often ill-prepared to teach culturally and linguistically diverse learners. As a result, experts in education suggest that in order to respond to the challenges of working with diverse learners, development of multicultural education perspectives must include the promotion of sensitivity towards different aspects of diversity. This study explored K-8 teachers' knowledge and understanding of their students' learning needs, specific to language and culture, and their perception of preparedness to effectively deliver instruction to learners of diverse linguistic and cultural background. In this study, the researcher hypothesized that teachers were ill-prepared to teach linguistically and culturally diverse learners. Through a mixed method research design, the researcher collected data through a web-based survey of teachers in the state of Michigan, USA. Cross-tabulations were performed using chi-square tests to investigate the relationship between teachers' preparedness and knowledge of their diverse learners' learning needs. Additionally, qualitative comments were examined, organized and summarized to illustrate key themes in each question under study. Findings revealed that teachers' perceptions of preparedness to teach linguistically and culturally diverse students were correlated with whether the classrooms were culturally diverse or not. Results from the study show that teachers are gradually becoming culturally responsive. Nonetheless, many educators still find the task of meeting students' academic needs to be overwhelming, specifically those needs related to language.

REFUGEE ENGLISH LANGUAGE PROFICIENCY AND EMPLOYMENT: A VOCATIONAL ESL CURRICULUM. Muldoon, S.; Literacy Studies-Teaching English to Speakers of Other Languages, College of Education.

Many refugees, upon arrival in the United States, lack sufficient proficiency in English to find a job, retain and advance in a job, and integrate into U.S. society. Thus, there is a need for an effective, concise vocational ESL curriculum targeted at refugees so that they can learn about working in the U.S. and American culture. Using Gardner's Social-Educational Theory of Second Language Acquisition and Knowles' Adult Education Principles and Theory of Andragogy as a framework, this project presents current research on the special challenges and barriers faced by newly arrived refugees to learn English and find employment. The project consists of a multi-level Refugee Vocational ESL Curriculum that has been developed for adult refugee students that acknowledges the diversity of refugees in educational and English language abilities. The curriculum introduces English Skills, Life Skills, Job Skills, Key Vocabulary, and Communicative Activities in a concise, 12-week format for use in a refugee employment program.

SCHOOL COUNSELING INTERNSHIP/PRACTICUM EXPERIENCE. Brocklehurst, M.; School Counseling, College of Education.

PURPOSE: Two 3-credit hour internships (300 clock hours each) are required in the school counseling master's degree program. During internships students complete specific tasks or projects related to their professional goals. Students are supervised by field supervisors who must be licensed or endorsed school counselors and provide one hour of weekly supervision on-site.

CHALLENGE: The central challenge of this experience has been to develop my counseling skills in the areas of personal/social, career, and academic development through individual student planning, comprehensive guidance curriculum, responsive services, and systems support. **EXPERIENCE:** I am completing my internship at the Eaton ISD Career Preparation Center. The lead counselor, Sandra Hutchins, serves as my on-site supervisor and school counselor for the career center. **OUTCOME:** Each student submits a final portfolio documenting activities completed over the course of the internship and the GVSU School Counseling program. My portfolio includes artifacts which demonstrate that I understand the philosophy, principles, and practice of school counseling, including the administration and coordination of professional relationships within school systems as well as professional

knowledge related to ethical and legal issues. The portfolio also contains work samples that provide evidence of my development of professional skills in the field of school counseling. **IMPACT:** These internship experiences are designed to meet Michigan Department of Education requirements for school counseling licensure or endorsement. Internships also provide graduate students in the school counseling program with field-based learning opportunities designed to provide work experience in an area of school counseling.

Engineering

(Padnos College of Engineering and Computing)

UTILIZATION OF DESIGN OF EXPERIMENT TECHNIQUES IN REDUCING A GLASS GRINDING DEFECT. Bomers, L.; School of Engineering, Padnos College of Engineering and Computing.

PURPOSE: Gentex Corporation is developing a new style of interior rear-view mirror where the substrate sits proud of the mirror housing. Federal regulations require at least a 2.5 mm radius of curvature around the perimeter of the substrate, and a grinding operation has been determined to form the radius in the substrate. During the process development, scratches have been observed along the surface of the ground edge. The purpose of this study was to utilize design of experiment (DOE) techniques to determine the process parameters that most significantly affected the presence of the scratches. **METHODS:** Feed rate, tool speed, and tool rotational direction were tested using a 23 full factorial design with two replicates. A vertical CNC and a diamond abrasive tool were used to form the ground edge into the substrate. Surface scratches on the ground surface were measured using an optical microscope. **ANALYSES:** Analysis of variance (ANOVA) was used to analyze the data from the study. The response variable was the number of scratches present on a ground substrate. **RESULTS:** Using a significance level of $\alpha = 0.05$, the only significant factor that affected the presence of the surface scratches was the tool rotational direction with a p-value of 0.013. It was determined that up-grinding produced less surface scratches than down-grinding. There were no significant interactions between factors. **CONCLUSIONS:** Results indicated that tool rotational direction significantly affected the number of surface scratches on a substrate, and the feed rate and tool speed were insignificant. To reduce the occurrence of the surface scratches, up-grinding should be employed.

English

(College of Liberal Arts and Sciences)

TOWARD A COMPETITIVE FUTURE: THE ROLE OF THE GRADUATE ASSISTANT IN THE RESTRUCTURED ENGLISH CAPSTONE COURSE.

Curtis, R.L.; English Department, College of Liberal Arts and Sciences.

PURPOSE: The Grand Valley English Department recently implemented a new English Capstone course intended to better prepare students for life after graduation. As the graduate assistant for this course, I aim to provide and coordinate additional student support. This work allows me to develop skills and gain valuable experience that is essential for my own study and career.

CHALLENGE: Managing my allotted 10 hours per week is a central challenge. I cannot anticipate the amount of requests in a given week, so I attempt to create flexibility in my schedule, prioritize tasks, and undertake a manageable amount of new endeavors. **EXPERIENCE:** My work encompasses various aspects: consulting with students, assisting in classrooms,

coordinating with professors and graduate assistants, developing materials, exploring potential resources, and organizing portions of the Capstone Conference.

OUTCOME: I have been able to maintain a balance between my various responsibilities. While student requests may increase in subsequent semesters, the current situation allows for the development of materials and methodology, which will provide a stronger framework for the future success of both the course and its students.

IMPACT: My work has fostered the development of skills – time management, leadership, foresight, problem solving, and assertiveness – that are vital for success in my own program of study. Furthermore, this experience provides valuable teaching experience which will allow me to be competitive in the job market or in a doctoral program.

Health Administration

(College of Community and Public Service)

A COST-BENEFIT ANALYSIS OF OUTREACH WORK DONE BY COMMUNITY HEALTH WORKERS TARGETING AT-RISK PREGNANT

WOMEN IN MUSKEGON COUNTY. Jados, E.; School of Public, Nonprofit & Health Administration, College of Community and Public Service.

The concern for the rising costs in healthcare has been escalating in the last few years and consequently healthcare organizations have taken an approach to reduce the costs. In April 2011, The Muskegon Community Health Project (MCHP) developed the Muskegon Area Pregnancy Pathways Pilot Project (funded by the March of Dimes). It was found that one of the best ways to reduce healthcare costs associated with low birth weight infants was to engage at risk women through the use of community health workers. The Muskegon Area Pregnancy Pathways Project was developed to target at-risk

women who were susceptible to delivering low birth-weight babies. As a result, this study aimed to give a socio-economic assessment of whether or not the program, with a Community Health Worker (CHW) led intervention, resulted in an overall gain or loss to the community. For this study, a cost-benefit analysis (CBA) has been done to measure the impact created by the program and by the CHWs. There will be 3 cost components and 2 benefits that can be quantified. The basis of the CBA will help organizations in their decision-making process to finance a similar program.

Medical and Bioinformatics (Padnos College of Engineering and Computing)

A TEMPORAL DATABASE MEDIATOR FOR GENE EXPRESSION DATA.
Hoiniski, M.E., Kutsumi, Y., Tole, O., Tusch, G.; School of Computing and Information Systems, Padnos College of Engineering and Computing.

PURPOSE: Molecular biological research is often based on measurements that have been obtained at different points in time. The biologist looks at these values not as individual points, but as a progression over time. Our program (SPOT) helps the researcher find temporal patterns in large sets of microarray data. **PROCEDURES:** Temporal data maintenance is concerned with the storage and retrieval of temporal data, while temporal reasoning focuses on the use of temporal data for decision support. A temporal (database) mediator is a computer program that allows for integration of the two tasks. Critical to both areas is temporal modeling. One framework of temporal modeling is the KBTA (the knowledge-based temporal abstraction) framework. Temporal abstractions (TAs) enable the conversion of quantitative data to an interval-based qualitative representation. Examples of temporal abstractions are trend TAs that capture increasing/decreasing values in time series and state TAs that correspond to low, high, or normal values in the time series. Temporal abstractions (TAs) convert quantitative data to an interval-based qualitative representation. **OUTCOME:** We created a web based temporal database mediator using open-source platforms that supports the R statistical package, PHP, Bioconductor, and Web 2.0 knowledge representation standards using the open source Semantic Web tool Protégé-OWL. We report here on use of the web interface and challenges of using public databases. **IMPACT:** Analysis of temporal gene expression data presents a novel opportunity to identify new drug targets and is one potential step to evaluate drugs for their overall effects.

IMPROVING BREASTFEEDING KNOWLEDGE, SELF-EFFICACY AND INTENT THROUGH A PRENATAL EDUCATION PROGRAM. Damstra, K. M.; Doctor of Nursing Practice, Kirkhof College of Nursing.

PURPOSE: Evidence from the literature overwhelmingly indicates that breastfeeding is the optimal form of feeding and is globally accepted as the gold standard for infant nutrition. Following recommendations of evidence-based practices such as the Baby-Friendly Hospital Initiative (BFHI) is an effective way to target the existing low breastfeeding rates and improve health outcomes. The purpose of this practice dissertation project was to work in collaboration with a community hospital on the BFHI designation pathway by implementing breastfeeding education (Step Three of the guidelines). Program goals included improving breastfeeding knowledge, self-efficacy and intent among the targeted population. **PROCEDURES:** Using the conceptual frameworks of both Donabedian and Breastfeeding Self-Efficacy theory along with evidence-based practice guidelines, a multi-faceted approach was implemented. Helping to create transformational change in organizational culture resulted in development of the prenatal educational program (PEP). Patients received breastfeeding education as a component of their routine care. **OUTCOME:** Preliminary evaluation did not indicate that there was a difference in the short-term outcomes. However, significant differences were found in breastfeeding knowledge and self-efficacy among both pre-intervention and post-intervention assessment groups in that women who planned to breastfeed had higher confidence when compared to women who were undecided or didn't intend to breastfeed. **IMPACT:** Practice implications exist related to implementation science, systems change and addressing breastfeeding barriers. Healthcare providers must have the necessary skills to provide breastfeeding education and support, and to improve health outcomes at the community level. A doctoral prepared nurse can have an integral role in achieving these outcomes.

A NURSING INTERVENTION TO IMPROVE NUTRITION FOR HEALTH PROMOTION FOR A VULNERABLE, URBAN, ADULT GROUP. Gracias, M.J.; Doctor of Nursing Practice, Kirkhof College of Nursing.

PURPOSE: Low-income adults often have nutrition-related health issues, such as obesity, diabetes, and hypertension. Factors identified as contributing to these issues are lack of nutrition education and lack of access to quality, healthy food choices. The purpose of the study is to improve

nutrition for health promotion in a group of vulnerable adults in an urban setting, and answer questions of 1) will a program of targeted nutrition education, with advocacy for quality food, be associated with increased nutrition knowledge and dietary behavior change? 2) Will such an intervention result in increased self-efficacy for food choices and their impact on health? **SUBJECTS:** Twenty low-income adult residents of government-subsidized housing, mentally and/or physically disabled, and/or over age 62. Many have obesity, diabetes, hypertension, and limited access to healthy food. **METHODS AND MATERIALS:** An 8-session nutrition/health promotion educational program was presented collaboratively with community nutrition educators. It included group discussion, recipes, food tasting, and overcoming barriers to good nutrition. Demographic information and pre- and post-test data for nutrition knowledge, behavior and self-efficacy were collected, plus open ended questions regarding what was “learned today” and “intended change”. Community advocacy and leadership for access to nutritious food accompanied the intervention. **ANALYSIS:** Descriptive statistics and paired t-tests, examination of open-ended question themes. **RESULTS:** Preliminary results suggest that the classes had an impact on nutrition knowledge, behavior, and self-efficacy. **CONCLUSION:** Continuing to provide education and community advocacy is a worthwhile endeavor.

Nursing-Masters

(Kirkhof College of Nursing)

PAIN MANAGEMENT AND THE POSTOPERATIVE ORTHOPEDIC

PATIENT. Smith, M. A.; Master of Science in Nursing, Kirkhof College of Nursing.

PROBLEM AND SIGNIFICANT STATEMENT: Under-treated pain is a significant problem in the United States leading to dissatisfaction and poor patient outcomes. On a local orthopedic in-patient unit, patient satisfaction scores related to pain management are lower than targeted, patients are not currently requested to give input to their own pain management regimen, and no distinct plan exists for pain management after surgery.

LITERATURE REVIEW: The literature suggests that a patient who receives an educational intervention with consistent postoperative education will be better able to manage pain at time of discharge. Evidence also relates that patients wish to be more involved in the pain management regimen and empowered patients are better able to control pain after discharge when care is delivered in this way. **PROTOCOL/INTERVENTION:** Nurses will introduce a new form to patients upon admission to the post-operative unit. Patients will communicate their desired preferences for pain management therapies, including medications and other non-pharmacological modalities using the

form. Nurses will educate the patient about pain goals and how the health care team will help the patient to meet the goals. The healthcare team will individualize and standardize the pain management plan of care based on the needs, recommendations, and input of the patient. **OUTCOMES:** The intervention will improve patient satisfaction with pain control and increase nurse and provider satisfaction with the pain management process. The intervention will also provide a more consistent pain plan to allow for provision of optimal postoperative care and reduced pain scores.

Nursing-Masters

(Kirkhof College of Nursing)

PATIENT HAND OFFS: FACILITATING SAFE AND EFFECTIVE TRANSITIONS OF CARE. VandenBerg, A.; Master of Science in Nursing, Kirkhof College of Nursing.

PROBLEM: The hand off at the change of shift is a critical time for information exchange which can have significant impacts on quality of care and patient safety. On one medical-surgical unit the end of shift hand off has been identified as an area for improvement. **LITERATURE REVIEW:** Literature suggests that hand offs conducted at the patient's bedside can help to decrease overtime and improve patient satisfaction scores. Evidence also supports the use of a standardized format for report. **PROTOCOL/ INTERVENTION:** The first step is to provide better education to patients and families on admission regarding the standard for bedside report. Nurses will ask the patient/family they like to be woken if they are sleeping to be included in the hand off. If the answer is yes a card will placed on the patient's door to alert staff of their wishes to be included in report. The second step is to create a report utilizing the SBAR (Situation, Background, Assessment, Recommendation) format. This tool would be laminated and affixed to the units work-stations-on-wheels (WOWs). **BENEFITS/ BARRIERS:** Anticipated benefits to better standardizing hand offs include: improved communication between nurses, improved communication between nursing and patients/families, a more efficient hand off process with less omission of information, and decreased time to conduct the hand offs. Perceived barriers include: potential costs, staff engagement, and compliance. **OUTCOMES:** Patient satisfaction, staff satisfaction, unit costs (related to decreased overtime), and patient length of stay will be targeted to improve with this protocol.

EFFECTS OF SPEED-DEPENDENT TREADMILL TRAINING AND RHYTHMIC AUDITORY-CUED OVERGROUND WALKING ON GAIT AND BALANCE FUNCTION AND FALL RISK IN INDIVIDUALS WITH IDIOPATHIC PARKINSON'S DISEASE: A RANDOMIZED CONTROLLED TRIAL. Harro, C.C., Shoemaker, M.J., Frey, O., Gamble, A., Harring, K., McDonald, J., Murray, C., VanDyke, J., Holda, S., Overmyer, J.; Department of Physical Therapy, College of Health Professions.

PURPOSE: This single-blinded, randomized controlled study examined the immediate effects of interval-based and progressive speed-dependent treadmill training (SDTT) and rhythmic auditory-cued (RAC) overground training protocols on gait and balance function and fall risk in individuals with Parkinson's Disease (PD). **SUBJECTS:** Twenty participants with idiopathic PD were randomly assigned into either SDTT (n=10) or RAC (n=10). **METHODS AND MATERIALS:** Training consisted of 30-minute sessions, 3x/week for 6 weeks. Dependent measures included comfortable and fast gait speed (CGS, FGS), Functional Gait Assessment (FGA), 6-Minute Walk Test (6MWT), Berg Balance Scale (BBS), Rapid Step-Up Test (RST), and NeuroCom Sensory Organization Test (SOT), Motor Control Test (MCT), and Limits of Stability (LOS). **ANALYSES:** Paired t-test and independent t-tests analyzed within and between group training effects. **RESULTS:** The within-group training effects revealed statistically significant gains in CGS (p = 0.013), 6MWT (p = 0.007) and FGA (p = 0.003) for the RAC group, and in FGS (p = 0.012), 6MWT (p = 0.027) and FGA (p = 0.000) for the SDTT group. Within-group training effects revealed statistically significant improvements in BBS (p = 0.017), RST (p = 0.037) and SOT Composite score (p = 0.049) for the RAC group, and in RST (p = 0.045), LOS Composite-EPE (p = 0.046), and SOT Composite score (p = 0.019) for the SDTT group. No statistically significant differences in training effects were found between-groups. **CONCLUSIONS:** These results provide evidence that SDTT and RAC protocols produced significant short-term improvements in gait and balance function in a PD cohort of community ambulators.

PHYSICAL ACTIVITY MONITORING IN CHILDREN WITH CEREBRAL PALSY: A SYSTEMATIC REVIEW. Hildebrand, E., Kettner, S., Stammen, C., Peck, J., Kenyon, L., Shoemaker, M.; Physical Therapy Department, College of Health Professions.

PURPOSE: The purpose of this systematic review was to compare the validity, reliability, and clinical use of commercially available monitors and qualitative assessments of physical activity in children with cerebral palsy. The aim was to inform clinicians about specific tools that have been used clinically to assess physical activity in children with cerebral palsy.

METHODS: CINAHL, PubMed, PEDro, and ERIC databases were searched. Articles were included if they met the following criteria: 1) children with cerebral palsy were classified with a Gross Motor Function Classification System level; 2) children included were 1- 9 years of age; 3) reported physical activity was included; 4) commercially available activity monitors, tests, or measures with previously established validity and reliability were used; 5) The publication was peer-reviewed. **RESULTS:** Seven studies were included with the majority of the studies having moderate-to-poor rigor. Studies included direct and indirect measures of physical activity. Several measured broad domains of function only which included physical activity as just one domain. Few measures had a primary focus on physical activity; the only tools used with a primary focus on physical activity were the Gillette FAQ and ABILOCO-Kids. The measures most frequently included were the GMFM-88, CHQ, and WeeFIM. None of the studies used accelerometers to measure physical activity levels. **CONCLUSIONS:** Most assessment tools used in the seven studies were qualitative, holistic tools that did not primarily measure physical activity. However, very few objective measures exist to measure physical activity in children with cerebral palsy between the ages of 1 and 9 years.

Physician Assistant Studies

(College of Health Professions)

ROBOTIC-ASSISTED SACROCOLPOPEXY: A RETROSPECTIVE REVIEW OF 211 CASES. McCann, J., Kluck, E., Theuerkauf, D.; Physician Assistant Studies, College of Health Professions.

OBJECTIVES: Robotic-Assisted Sacrocolpopexy (RSC) is gaining popularity as an alternative to open abdominal sacrocolpopexy. The purpose of this study was to evaluate intra-operative and post-operative complications of RSC performed by a single operator. **MATERIALS AND METHODS:** This was a retrospective study involving a review of 211 patients who underwent RSC between October 2007 and February 2012 in a community hospital. **RESULTS:** Two hundred eleven patients underwent RSC for advanced pelvic organ prolapse stage 3 (135 patients) and stage 4 (76 patients). Patients had a mean age of 63.79 (range 39-83) years and mean BMI of 27.60 (SD 3.99). One hundred forty-eight (77.1%) of 192 patients (data missing on 19 subjects) had previous abdominal surgery. Two hundred six patients (98%) were treated concomitantly with the following procedures: supracervical hysterectomy in

97 (46%), total hysterectomy in one (0.5%), bilateral, right or left oophorectomy in 127 (60.2%), and lysis of adhesions in 143 (74.5%, data missing on 19 subjects). There were three patients (1.5%) who were converted to an open abdominal procedure; two had extensive adhesions and one had a difficult pre-sacral space. Intra-operative complications included one patient (0.5%) who had a cystotomy and was converted to open abdominal. There were no ureter, rectal, small bowel, or major vessel injuries and no blood transfusions. Cystoscopy was routinely performed. Post-operative complications occurred in five patients (2.3%) and included the following: one mesh erosion, one patient developed subcutaneous emphysema, one patient developed post-operative mesh infection, one patient with back pain (discitis), and one patient readmitted with ileus herniated small bowel. Mean operative time was 157.69 (SD 32) minutes and mean length of stay was 24 (SD 4.58) hours. **CONCLUSIONS:** RSC is a newly evolved procedure for pelvic organ prolapse repair. It is a feasible and safe procedure with minimal intra-operative and post-operative complication rates when performed by a single surgeon.

Public Administration

(College of Community and Public Service)

MICHIGAN DRUNK DRIVING CONDITIONS AND SOCIOECONOMIC FACTORS. Nieboer, R.; School of Public, Nonprofit & Health Administration, College of Community and Public Service.

PURPOSE: Drunk driving is a complicated social issue and may be responsive to many different socioeconomic factors. In order to adopt the most effective policies to combat drunk driving, the socioeconomic factors that affect drunk driving must be identified. **SUBJECTS:** County level data for drunk driving convictions was compiled from the Michigan State Police's 2011 Drunk Driving Audit. **METHODS AND MATERIALS:** The number of "drunk driving" convictions per county was calculated by combining data for several different crimes, all involving the unlawful operation of a vehicle while under the influence of alcohol. Income and education data was taken from the 2000 Census' Profile of Selected Economic Characteristics and the 2000 Census' Profile of General Demographic Characteristics. Using ArcMap10, drunk driving convictions were mapped by county. **ANALYSES:** Moran's I was calculated to determine spatial autocorrelation and identify clusters of convictions. **RESULTS:** There is one cluster of high drunk driving in Michigan. It is located in southeast Michigan in Genesee, Macomb, Oakland, Washtenaw, and Wayne counties. The predominant socioeconomic factors in this area include above average education (excepting Wayne County) and above average income. **CONCLUSIONS:** The results of this study imply that, as a social problem, drunk driving is worse in areas with higher education and

higher income. These results are somewhat unexpected and raise questions about the validity of this study and suggest direction for future study.

Public Administration

(College of Community and Public Service)

KENT COUNTY RENTAL PROPERTIES IN 2000 AND 2010. St. Louis, L.; School of Public, Nonprofit & Health Administration, College of Community and Public Service.

PURPOSE: A report sponsored by the Johnson Center's Community Research Institute states that beginning in 2004 until April 2012; the number of foreclosed homes in Kent County reached 20,684 units. This report also indicated that there are currently 2,009 homes owned by someone other than a resident with another 815 in process of foreclosure. Different foreclosure strategies were developed to prevent residents from losing their homes. These approaches included counseling, repayment plans, and loan modifications. I believe some residents may have opted to rent out their homes in lieu of a foreclosure or short-sale. **SUBJECTS:** County level data for drunk driving convictions was compiled from the Michigan State Police's 2011 Drunk Driving Audit. **METHODS AND MATERIALS:** I used ArcGIS to convert the US Census data of rentals into shape files and then mapped the percentages of those two years for Kent County. Using the same methods, I also mapped the change in the percentages for the ten years. **ANALYSES:** By creating a Histogram, I was able to graphically compare the numerical change in quantities between 2000 and 2010. **RESULTS:** Rental units did increase between 2000 and 2010 according to U.S. Census data. **CONCLUSIONS:** A conclusion could be inferred that in order to avoid foreclosure, owners chose to rent out their homes until the market recovered. This research has social implications for Kent County. It has been widely believed that rental properties are not maintained as well as owner-occupied. The primary concern is with the increase in these units, it could decrease property values.

**Public Administration and Social Work
Community and Public Service)**

(College of

VETERAN EMPLOYMENT CHALLENGES. Cederholm, E.; School of Public, Nonprofit and Health Administration and School of Social Work, College of Community and Public Service.

This research explored veteran's employment challenges and examined why they experience disproportionately high rates of unemployment compared to their non-veteran counterparts. The elements of this analysis included the micro, mezzo, and macro framework as an explorative tool to discover

challenges faced by veterans and possible solutions. Analyses of several studies showed the successes and shortcomings of various approaches to the problem with the veteran population. The findings can be utilized to improve existing programs and create new efforts toward holistic support of veteran employment as the number of veteran's returning to the general workforce continues to increase.

Social Work

(College of Community and Public Service)

THE EXPERIENCE OF BEING A FOSTER PARENT IN NON-KINSHIP PLACEMENTS: EMOTIONAL AND PSYCHOLOGICAL IMPACTS. Tryc, L.; School of Social Work, College of Community and Public Service.

Due to previous life experiences, children who enter the foster care system have been significantly impacted in numerous ways; and the individuals who act as their caregivers may encounter behavioral challenges as they seek to address the result of what years of abuse and trauma have created. However, as placements progress over time, the foster child may also become an integrated member of the foster family and thus attachments are formed. As a result, foster parents may experience the significant impacts of managing severe and challenging behaviors as well as breaking strong attachments with the foster child who has largely become family. Therefore, the intent of this research study was to gauge how managing behavioral challenges and forming attachments with foster children may impact the families in non-kinship placements, emotionally as well as psychologically. Furthermore, it was important to determine if these impacts additionally served as deterrents for foster families to continue their placements. The process of data collection consisted of interviews conducted with foster parents individually as well as a couple when applicable, with a previously established interview protocol serving as a guiding framework. The interviews were then transcribed and assessed for emerging themes, commonalities as well as discrepancies. Lastly, the psychological and emotional impacts of managing behavioral challenges and forming attachments were identified and discussed. As the findings indicate, despite their intensity, these impacts did not serve to deter participants from continuing their role as foster parents. Overall, the findings of the present study were largely consistent with previously cited research and provided additional implications as well as recommendations for future policy and practice.

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