

**EXPLORING THE EFFECTS OF BLOG VISIT EXPERIENCE ON RELATIONSHIP QUALITY: AN EMPIRICAL INVESTIGATION WITH A CARDIAC SURGERY MEDICAL BLOG SITE**

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This research explores the use of blog, a Web 2.0-based communication channel, for improving the relationship between the consumer and the provider of a highly specialized medical service, cardiac surgery. A medical blog was created to facilitate open communication of health concerns and professional knowledge between a cardiac surgery department of a major medical center in Taiwan and their patients. An outcome of a collaboration effort between an academic research team and the physicians of the medical center, this blog was expected to help cardiac illness patients and their families in coping with the anxiety caused by their health problems and the subsequent treatment process. This research develops a conceptual framework and analyzes empirical evidence to test assumptions about the benefits of blogs in the medical domain.

Visitors of our medical blog were surveyed regarding their website visit experience. Their responses were analyzed as to how the website's customer relationship management practices affected visitors' visit experience, their relationship learning effect, and how these latter two variables in turn affected the quality of patient relationship with the physician. It is hypothesized that the website's customer relationship management practice significantly affects blog visit experiences and relationship learning. It is also hypothesized that blog visit experience has significant impact on relationship quality and relationship learning. The results of data analysis using the structural equations modeling analysis confirmed most of the hypothesized relationships between the researched constructs.

**ETHNIC PROXIMITY, HOST COMMUNICATION COMPETENCE, AND PSYCHOLOGICAL HEALTH:  
A STUDY OF CROSS-CULTURAL ADAPTATION AMONG INTERNATIONAL STUDENTS IN THE U.S.**

Yang Soo Kim (Faculty)  
Speech and Theatre

The study will examine cross-cultural adaptation experiences of international students studying at an American university. Based on Kim's (1998, 2001) cross-cultural adaptation theory, the present study addresses the relationship between two theoretical constructs, "host communication competence" and "psychological health." The host communication competence will be measured in three dimensions—cognitive, affective, and operational. In addition, the study examines the ethnic proximity of international students, and its effect on the level of host communication competence and the process of their adaptation by comparing European students and Asian students. To collect the data, self-reported quantitative survey questionnaire will be used in combination with an in-depth personal interview. For the survey, the target sample will be 100 international students in American university campuses. The in-depth personal interview with 20 international students (10 European students and 10 Asian students) will follow to have more qualitative insight on individual adaptation experiences of adaptation.

The present study will have theoretical implications because it will test culture-general patterns of adaptation between host communication competence and adaptation. In addition, it will also examine culture-specific variation based on students' ethnic proximity to a target culture in the process of adaptation. The findings of this study could be used to help international students adapt to American campuses effectively.

## **DEVELOPMENT OF CONCRETE PATCHING MATERIALS**

Zhifu Yang (Faculty)  
Concrete Industry Management

The surface distress of concrete bridge decks can cause serious safety hazards as a result of bumpy ride. The deteriorated concrete also provides easier pathways for the penetration of water and aggressive chemicals, causing further deterioration. There is a growing need for the Tennessee Department of Transportation (TDOT) to develop a practical and durable solution for repairing the surface distress of concrete bridge decks, in which the selection of adequate patching material plays a key role in achieving a successful repair. It is the intention of the project to provide TDOT with the essential information to effectively assess the performance of various patching materials that can be used for repairing the surface deterioration.

## **CRACKING REPAIR OF CONCRETE STRUCTURES**

Zhifu Yang (Faculty)  
Concrete Industry Management

Repair of cracked concrete structure is an art and a science that has been practiced for many years. A long-lasting, aesthetically-acceptable, and structurally-sound repair of deteriorated concrete structures is a challenge now facing the concrete profession. Epoxy injection is a successful method of strengthening the cracked concrete structures such as walls, slabs, columns, and beams. The intent of this project is to evaluate the effectiveness of epoxy injection using splitting tensile testing and non-destructive testing techniques. Another objective of this project is to find out how crack size affects the penetration of various epoxies.

**$\alpha$ -SYNUCLEIN IN  $\alpha$ -HELICAL CONFORMATION AT AIR-WATER INTERFACE: IMPLICATION OF  $\alpha$ -SYNUCLEIN CONFORMATION, ORIENTATION, AND ACCUMULATION AROUND THE VESICLES IN PRESYNAPTIC TERMINALS OF NEURONAL CELLS**

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Chemistry

Parkinson's disease (PD) is manifested by the abnormal deposits, which are named as Lewy bodies, in the dopaminergic neurons in the brain of PD patients. The major component of Lewy bodies is alpha-synuclein ( $\alpha$ -syn), a protein of 140 amino acids whose two termini sandwich a hydrophobic mid-segment (i.e., the non-amyloid component). Alpha-syn is an abundant protein and contributes ~ 1 % of the total proteins in brain. However, the concentration of alpha-syn in the cellular plasma is very low (~ 20 nM). On the other hand, high concentration of  $\alpha$ -syn accumulates in the presynaptic terminal area. The reason for this accumulation has not been clarified. Here, we employed Langmuir monolayer technique to study the surface behavior of  $\alpha$ -syn at amphiphilic interface and found alpha-syn transfers its unstructured conformation in aqueous solution to alpha-helix at the interface. This conformation change is irreversible and consequently alpha-syn accumulates at the interface. This result may explain the reason of the accumulation of  $\alpha$ -syn in vivo.

## **DISSEMINATING “DEAFENSTEIN”: CONSTRUCTIONS OF HEARING LOSS AND DEAFNESS IN ENTERTAINMENT TELEVISION**

Katie Foss (Faculty)  
Journalism

Media can reinforce stigmas about hearing loss and deafness, which have historically been portrayed negatively through limited roles, played by hearing actors (Safran, 1998; Schuchman, 1999; Klobas, 1988). In 1986, Deaf actress Marlee Matlin’s Academy Award for Children of a Lesser God marked a turning point in entertainment history, greatly expanding the roles for deaf actors (Klobas, 1988). This study explores contemporary stigmas associated with hearing loss by examining television representations of deafness and hearing loss from 1987 through 2011. The programs studied rarely address progressive hearing loss, portraying it as isolating, embarrassing, and unprofessional. The characters’ temporary hearing loss was quickly fixed by antibiotics, surgery, witchcraft or other means. Deaf characters appear more frequently and were played by deaf or hard of hearing actors. Common storylines included the Cochlear implant controversy and conflicts between the “hearing” and “Deaf” communities. A character’s deafness was almost always integral to the storyline.

The absence of realistic hearing loss experiences is problematic, given that positive portrayals could help de-stigmatize hearing loss, increasing acceptance, understanding, and support (Sharf & Freimuth, 1993; Nelson, 1996). Expanding on the diversity of representations could shift the focus on deafness from a disability to a cultural trait of a group that uses ASL to communicate (Padden & Humphries, 2005). As demonstrated with numerous edu-tainment health campaigns, entertainment media can impact public perception of people with hearing loss, likely influencing the educational, occupational, and social opportunities of this rising minority (Winsten, 1994; Glik et al., 1998; Brodie et al., 2001; Lin et al., 2011).

**FACULTY AND STUDENT PERCEPTIONS OF ONLINE VERSUS TRADITIONAL COURSES:  
A COMPARATIVE STUDY**

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Management and Marketing

Scott Seipel (Faculty)  
Computer Information Systems

Joey Gray (Faculty)  
Recreation and Leisure Services

Ryan Otter and Kim Sadler (Faculty)  
Biology

Karen Petersen (Faculty)  
Political Science

Becky Alexander and Lesley Craig-Unkefer (Faculty)  
Elementary and Special Education

Carol Boraiko (Faculty)  
Engineering Technology

The number of online courses being offered by universities has grown substantially in recent years. However, many universities make decisions regarding online course offerings without full knowledge of how online courses are perceived compared to traditional (classroom) classes. To better understand perceptions and evaluations of online courses, a Faculty Learning Community (FLC) was formed in the fall semester of 2011 and was sponsored by the Learning, Teaching, and Innovative Technologies Center at Middle Tennessee State University (MTSU). The goal of this FLC is to better understand MTSU students' and faculty members' perceptions of, and attitudes toward, online versus traditional (classroom) class formats. A review of previous research revealed that there were no studies directly comparing the perceptions of students and faculty members at the same university. To bridge this gap in the literature, we developed two separate, but comparable, surveys – one for students and one for faculty members. Both surveys measured: (1) perceptions of online versus traditional courses, (2) perceptions of students who take online courses and students' motivations for taking online courses, (3) perceptions of faculty members who teach online courses, (4) perceptions of how potential employers view online courses versus traditional courses, (5) student' general motivations for learning and attending college, (6) students' satisfaction with MTSU, online courses, and traditional courses, and (7) demographic characteristics. The student survey was administered during classroom sessions. The faculty survey was administered online. A unique aspect of this research is that the faculty members who were identified to receive the survey have all taught, or are currently teaching, both an online version and a traditional version of the same course. Our poster session will highlight significant findings from both surveys.

## **MATHEMATICS AS A FIRST STEP TO SUCCESS IN STEM**

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Mathematical Sciences

Tom Cheatham (Administrator)  
College of Basic and Applied Sciences

Donald Nelson (Faculty)  
Mathematical Sciences

Chris Stephens and Elaine Tenpenny (Faculty)  
Mathematical Sciences

Jennifer Yantz (Graduate Student)  
Mathematics and Science Education PhD Program

The Middle Tennessee State University (MTSU) FirstSTEP program (NSF DUE-0969571) focuses on retention of freshman and sophomore Science, Technology, Engineering, and Mathematics (STEM) majors who do not have a strong background in mathematics prior to coming to MTSU. FirstSTEP recruits a cohort of up to 50 STEM majors whose mathematics ACT is between 19 and 23, inclusive, and provides these students with a set of experiences to help prepare them for success in STEM. Activities focus on mathematics preparation but include life and college skills as well. Before they begin their freshman year in college, the cohort spends two weeks in a summer mathematics bridge program that assesses and addresses their deficiencies in mathematics. Believing that providing context for learning is important, students also learn how mathematics is used in their discipline. The cohort is enrolled in a one-credit pass/fail seminar during their freshman and sophomore academic year to help them stay on track in mathematics and to learn more about skills for being successful in life and college. As a part of this seminar, the participants also complete required tutoring in mathematics each week. The students are engaged in an in-depth, pre-research, team experience in the summer before their sophomore year so they will have deeper understanding of one STEM area. The PIs observed positive changes of the participants' subject knowledge, research ability, and self-discipline by the end of their summer pre-research experience. This project has collected data on the effectiveness of the mathematics summer bridge, the academic year seminar, and the summer pre-research experience to assess students' progress toward improved retention in STEM. Data will also be presented on how these project components improve the students' motivation and intermediate steps for success. The ultimate goal of this project is to improve STEM graduation rates at MTSU.



## MUSIC SALES, CHART TURNOVER, AND THE RANDOM COPYING HYPOTHESIS

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The framework of Klein and Slonaker (2010) is used to test the random-copying hypothesis proposed by Bentley, et al. (2007) using data on the recorded music industry for 1990-2010. This hypothesis holds that, in decisions with little intrinsic value, people will simply copy one another's behavior at random. Bentley, et al. show through computer simulation that random copying results in a rate of turnover on a list of the top  $y$  items that is proportional to the size of the list,  $y$ , and the square root of the rate of innovation,  $\mu$ , where  $\mu$  is the fraction of the population that chooses new items, or "variants," in each period. They point to a "constant" rate of turnover on Billboard's "Top 200" album chart from 1963 to 1985 as evidence of this behavior. They argue further that the turnover rate is independent of population size. The random-copying hypothesis is tested using monthly data on Billboard's "Top 200" chart turnover, music sales, price indices for music and related goods, income, and demographics. A structural time series approach is applied that allows for the capture of an unobserved component, including the effect of illegal file-sharing. Population size, income, and the prices of music and related goods have significant effects on the turnover in the Billboard Top 200 chart between 1990 and 2010. Chart turnover, moreover, is not constant, but increases over time and displays a small, but significant, unobserved component. These results contradict random-copying behavior. The implication in the random-copying model of a non-constant rate of chart turnover is that the rate of "innovation" in the population is also non-constant. Consequently, increasing chart turnover indicates increasing innovation in the music industry and, by implication, increasing music supply in the digital age.

## **NEWSPAPERS VS WEBSITES: WHICH PRESENTS NATION/WORLD NEWS BETTER**

Philip Loubere (Faculty)  
Journalism

Newspapers are summaries of the previous day's events, with relative importance of stories signaled by visual cues: position on the page, headline size and visuals. Websites, in contrast, never have a final edition — throughout the day, newer stories get added as older ones roll off, and all are presented in a relatively uniform fashion. The goals of this study are to show how that affects comprehensiveness of coverage of nation/world news and what functional, technological and economic influences are shaping both platforms. Over the course of a year, six websites and three newspapers were compared on a daily basis for their choice and hierarchy of nation/world stories as well as the effectiveness of overall presentation and use of visuals. Also, surveys were done on three separate occasions with small groups of students who used the Web to get news, in order to compare their impressions of nation/world events. The results give insight into the strengths and weaknesses of each platform, and call into question whether news sites as they currently function are good sources for comprehensive coverage of national and world events. Visuals accompanying this study include screen shots of news sites compared to newspaper pages, charts analyzing percent of story agreement, charts of frequency of major breaking news, and grid analysis of news sites and newspapers.

## **LOOKING BEYOND NUMBERS AND BODY MASS INDEX (BMI): A COMMUNICATIVE APPROACH TO UNDERSTANDING OBESITY**

Mary Beth Asbury (Faculty)  
Speech and Theatre

A recent medical study (Post, Mainous, Gregorie, Knoll, Diaz, & Saxena, 2011) has concluded that overweight and obese individuals do not know they are overweight or obese unless a physician tells them. The results of the Post et al. (2011) study have recently gained prolific notoriety in the media, being repeated in various news outlets, such as National Public Radio, Time Magazine, and the Wall Street Journal, leading many to conclude that overweight and obese people are “clueless” regarding their weight. However, while the aforementioned study provides statistically significant information regarding one’s weight perceptions, the researchers overlooked a key variable, which is how patients actually talk about and describe themselves (beyond just their BMI scores).

The current study examined this issue of weight perception from a communicative standpoint. Interviews were conducted with 24 female participants from a large, Midwestern university. The researcher calculated their BMI scores but did not tell participants which weight group they fit into during the interviews. Participants were asked to describe themselves physically, as well as draw pictures of what they felt underweight, “normal” weight, overweight, and obese individuals looked like. They were then asked to circle which drawing with which they most identified.

Results revealed that overweight and obese participants were correctly able to identify themselves according to their weight group. For example, most overweight and obese participants described themselves as being “chubby,” “overweight,” or “unfit.” In addition, most participants circled the drawing that was associated with their weight group. Underweight participants always identified themselves as part of the “normal” group, while those participants who had the “normal” BMI either identified themselves as being “normal” or overweight.

**SCIENTIST-IN-RESIDENCE: TEACHING, RESEARCH, AND INDUSTRY APPLICATIONS TO DEEPEN SCIENTIFIC UNDERSTANDING IN MIDDLE TENNESSEE**

Anthony Farone (Faculty)  
Biology

Alison Carey, Patrick Cusaac, Julie Folks, Jessica Matz, Emily Mattison,  
Eric Salmon, Tiffany Saul (Graduate students)  
Biology

Chasity Suttle (Graduate Student)  
Chemistry

Olena James (Graduate Student, Tennessee State University)

Mary Farone and Kim Sadler (Faculty)  
Biology

The Middle Tennessee State University National Science Foundation funded GK-12 program is focused on Teaching, Research, and Industrial Applications to Deepen (TRIAD) scientific understanding in Middle Tennessee. Graduate Fellows in biology and chemistry, local high school science teachers, and regional biotechnology companies partner together for a calendar school year to bring effective teaching and research to the classroom. An interactive two-week summer workshop introduces Graduate Fellows, high school Partner Teachers, and biotechnology Industry Partners to the program. Visits to participating Industry Partners allow student-teacher pairs the opportunity to meet and interview local biotech industry scientists. During the year, the science companies are invited to high school classrooms where they share with students their industry goals or specific technologies and educate high school students about possible careers in science. The Graduate Fellows represent a variety of scientific research fields. For this reason, Partner Teachers also spend part of the summer week in the lab with the Graduate Fellows, learning about their specific research and methods. Each Fellow incorporates his or her own research into the high school classroom by serving as a Scientist-in-Residence and presenting introductory lessons and hands-on lab activities. Graduate Fellows attend workshops throughout the year that focus on improving communication skills and have many opportunities to practice and receive professional critiques of their presentations. Graduate fellows mentor high school student research projects and utilize their connections with Industry Partners to form research mentor connections between students and the community. With a diverse group of Graduate Fellows, unique connections with community Industry Partners, and a variety of urban and suburban teachers and high schools, the TRIAD GK-12 program represents a model of an exciting project aimed at integrating teaching, research, and industrial applications.

## **ANXIETY AND SENSATION SEEKING IN SCUBA DIVERS**

Donald Kendrick (Faculty)  
Psychology

More than 300 individuals were surveyed on personality characteristics, including the Big Five and Sensation Seeking (SSSV). Surveys were administered in person, on the internet, and during college classes. Beginning scuba divers and highly experienced technical divers were compared to nondivers. Scuba divers have higher SSSV scores and lower trait anxiety than nondivers, with more scuba experience associated with lower anxiety. Unexpectedly, students in scuba classes, but not yet certified, scored lower on measures of conscientiousness, extraversion, and openness than either the technical divers or the nondiving college student. These findings suggest that the personality of technical divers differs in some ways from the nondiving person and from students in scuba classes (who may or may not go on to become scuba divers). It is clear however, that advanced technical divers have personalities distinct from nondivers, students on the way to becoming divers, and even differ from the recreational scuba diver.

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## **BEHIND THE SCENES: A COURSE DELIVERY DECISION TREE [CDDT]**

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English

Paula Calahan (Staff/Administrator)  
Instructional Technology Division

Tom Brintraupt (Faculty)  
Psychology

Barbara Draude (Staff/Administrator)  
Instructional Technology Division

The emergence of new methods of course delivery—web assisted, blended, hybrid, asynchronous and synchronous online, accelerated, etc.—has increased the complexity of pedagogical decisions in the course design and redesign process. This poster presentation encourages faculty to adopt a systematic approach in making decisions about how a course should be delivered. The primary objectives are to introduce a decision-making guide intended to help faculty make pedagogically sound decisions regarding what delivery methods best target their student learning objectives.

In the past, course delivery decisions were simple. Other than face-to-face, few other options existed. Today, there are multiple alternatives but little guidance for choosing among them. The tendency is to learn about a tool or method and adopt it, without due consideration of the relevant learning outcome. As result, faculty may end up with mismatches between delivery methods and objectives, or they may neglect alternate options that would enhance student learning and teaching effectiveness. The presentation will show faculty how to use the Course Delivery Decision Tree model to allow them to bring learning objectives from the background to the forefront of course delivery decisions.

## ONLINE MYTH-BUSTING

Janet McCormick (Faculty)  
Speech and Theatre

Sharon S. Smith (Faculty)  
Honors College, Speech and Theatre

The need for online teaching is clear. According to the Sloan Consortium, 5.6 million students studied online in US in 2009. Nearly 30% of the 19 million full time and part time students enrolled in colleges and universities in the country took at least one online course in 2009. About 750,000 certificates were awarded in 2008-2009 (survey done by Complete College America). For example, the University of Illinois offers 107 online degree and certificate programs, the University of Maryland University College offers more than 25 undergraduate degree programs and 30 certificates online, and Arizona State University has more than two dozen online undergraduate and graduate degree programs. MTSU offers more than 230 courses online, and has four online bachelor's degree programs and six online master's degree programs.

Studies indicate students drawn to online education base their decision on geography (rural/global), family, work, and other commitments. They do not miss commute/parking/gas price, they want to log in on their own time (flexibility), they find online courses convenient, they may have physical disabilities (can't travel) or they may be shy/inarticulate face-to-face. Best practice is to use your "best teachers" who are core to the program, committed to the delivery method, and committed to doing it well. Some advantages for teachers and students include: accessibility, flexible schedule, student centered learning, helps develop new skills, quicker turnaround of assignments/grades, cheaper to upload articles/papers/etc, collaborative learning environment (James, 2002). Some disadvantages to teachers and students include: being online 24/7, developing the online site, potential for cheating on assignments and in online discussion/participation, time to deal with technical problems (James, 2002). On average students in online learning conditions performed better than those receiving face-to-face instruction (Department of Education, 2009). The time to embrace online teaching and learning is NOW!

**THE LONG-RUN RELATIONSHIP BETWEEN FINANCIAL DEVELOPMENT AND REMITTANCES:  
EVIDENCE FROM AFRICA AND LATIN AMERICA**

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Economics & Finance

Christian Nsiah (Faculty)  
Economics and Finance,  
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In view of the sizable increase in recorded migrant workers' remittances to developing countries from \$70 billion in 2000 to \$167 in 2005, this study investigates the long-run relationship between remittances and financial services development (FSD) and control variables including exchange rate (ERS), the size of migrant stock (MSK), the domestic per capita income (DPC) in the receiving country and foreign per capita income (FPC) in the main host country. We use a newly developed panel unit-root tests, cointegration tests, and panel fully modified OLS (PFMOLS) on annual panel data over the 1985-2007 period for 44 countries consisting of 25 from Africa and 19 from the Americas. It is found that the financial development, exchange rate stability, and migrant stock have positive and statistically significant effect on remittances in both regions as a group and in each of the regions. The study has important policy implications for the role of the financial services development through domestic credit expansion by the banking industry as well as increased competition among money transfer operations and exchange rate stability in order to promote the continuation of remittance inflows as a major source of economic growth in Africa and the Americas.



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## **DEVELOPMENT OF A FLESHED-OUT ANTIBIOTIC PHARMACOPHORE WITH SUBATOMIC RESOLUTION**

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Chemistry

Yevgeny Moskovitz (Faculty)  
Chemistry

Tibor Koritsanszky (Faculty)  
Chemistry

Anatoliy Volkov (Faculty)  
Chemistry

Preston MacDougall (Faculty)  
Chemistry

The rise of antibiotic-resistant infection is a persistent and growing threat to public health. New approaches for discovering the next generation of antibiotics are needed to combat these microorganisms. DNA gyrase is one of the attractive and well established targets for the development of antibiotics. It catalyzes the introduction of negative supercoils into DNA using the free energy of ATP hydrolysis. We applied state-of-the-art visualization technology to monitor drug-target intermolecular interactions at the ATP-binding site of DNA gyrase. We have identified subatomic features that can spatially direct or alter the energetics of close-contact intermolecular interactions for a series of antibiotic-substance pairings. Visualization tools under development include ultra-high resolution volume-rendering of the Laplacian of the total electron density distribution to be done in parallel on a 3x4 hyperwall. Our ultra-high resolution mapping of pharmacophores will be used in docking investigations that will incorporate key, non-classical interactions with unprecedented fidelity to the true quantum mechanical nature of these complex interactions.

## **PARTISANSHIP AND INCOME AS PREDICTORS OF KNOWLEDGE ABOUT TENNESSEE'S NEW VOTER ID LAW**

Ken Blake (Faculty)  
School of Journalism / Office of Communication Research

The knowledge gap hypothesis (Tichenor, Donahue & Olien, 1970) asserts that higher socioeconomic status individuals acquire public affairs knowledge faster over time than do lower socioeconomic status individuals. Because knowledge is power, the resulting “gap” in knowledge can interfere with equitable social outcomes. Hindman (2009) suggests that rising political partisanship is creating a related, but different, problem. His “belief gap” hypothesis posits that belief of politically contested information diffuses more rapidly among partisans whose ideology it complements than among partisans whose ideology it challenges. The resulting disparity can preclude democratic debate by denying it a starting point. Hindman assumes ideology drives this process so completely that socioeconomic status is irrelevant. However, his findings suggest that socioeconomic status and ideology contribute independently, but significantly, to the development of belief gaps. Meanwhile, the theoretically plausible possibility that socioeconomic status and ideology might interact as predictors of belief gaps – and may be knowledge gaps as well – remains unexplored, an oversight this study aims to remedy. Based on multiple regression analysis of data from the Fall 2011 and Spring 2012 installments of the MTSU Poll, the study finds evidence that socioeconomic status and political ideology correlate interactively with objective knowledge related to Tennessee’s new, politically contentious law requiring voters to show a photo ID at the polls. Specifically, knowledge about which IDs are valid for the law’s purposes rises with income, a finding consistent with the knowledge gap hypothesis, but only among Democrats and Republicans, a finding that echoes elements of the belief gap hypothesis. These results suggest there may be a single process behind both knowledge gaps and belief gaps – namely, a process in which partisan elites subsidize the diffusion among their constituents of information using communication channels by which higher socioeconomic status individuals within those constituencies are most likely to be influenced.

## **EFFECT OF CLICKER USE ON CLASS ATTENDANCE, ATTITUDE, AND PERFORMANCE**

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Psychology

Valerie Taylor (Undergraduate)  
Psychology

Laura Brecik (Undergraduate)  
Psychology

Kassidy Strickland (Undergraduate)  
Psychology

Several studies suggest that the use of individual response technology (e.g., clicker) in the classroom has a positive impact on numerous student outcomes, including class attendance, participation, and engagement, as well as improved comprehension of course material. In the current study, we investigated the extent to which these findings apply to students enrolled in larger sections of General Psychology at MTSU. The educational outcomes of students in two general psychology classes—both taught by the same instructor using identical materials—were compared. Throughout the course, students in both classes were exposed to a series of multiple choice questions, scattered through the lectures, designed for students to test themselves, as well as to encourage attention to and participation in class; however, students in one class responded to the questions using clickers, whereas students in the other class responded more traditionally, either by raising hands or by shouting out answers. Attendance and participation records, observed classroom behaviors, and grades were compared between the two classes, as were attitudes toward the course, measured by a survey administered at the end of the semester. The results suggest several positive impacts of the clicker technology, including higher attendance in the “clicker” class, more consistent participation when responding with clickers than without, and a strong positive attitude towards the pedagogical value of the clickers, in general. In sum, it appears that individual response technology may serve as an important tool for engaging students in the classroom, and, in so doing, improve learning of course material.

**SPACE GRANT UNDERGRADUATE LAND COVER/LAND USE MAPPING PROJECT, MOBILE BAY, ALABAMA**

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Geosciences

Emily Anderson (Undergraduate)  
Geosciences

Matt Cooley, Kristian Olson, Lisa Scott, Shea Atkins (Undergraduates)  
Geosciences

Lauren Camfield, Benjamin Fultz, Margaret Lopez (Undergraduates)  
Geosciences

Garrett MacDonald, Sandra Niazi (Undergraduates)  
Geosciences

Nine Middle Tennessee State University Geosciences undergraduates mapped the land cover/land use (LCLU) of a 915 sq. km (226 thousand acre) area on the southeast side of Mobile Bay, Alabama during 2011. The map area includes seven HUC12 watersheds within the Mobile Bay Basin and seven watersheds within the Perdido Bay-Wolf Bay Basin. Communities within the study area include Gulf Shores, Foley, and Daphne, Alabama. The undergraduates investigated LCLU at 455 sites within the map area, examining all of the sites on orthophotos and visiting most on the ground during early March, 2011. The undergraduates created a LCLU map by applying unsupervised and supervised classification to a late 2010 Landsat scene. To improve their map, the undergraduates used information from the Census 2010 TIGER/Line road map. The undergraduate LCLU map has five classes: open water, developed land, barren land, forest (including forested wetland), and pasture and cultivated crops. The LCLU map has an overall accuracy of approximately 76% based on comparison with orthophotos at 210 stratified random sites. The undergraduates will compare their map with older LCLU maps to better understand urban growth.

## **DEVELOPING AN ARTIFICIAL INTELLIGENCE-DRIVEN PLATFORM FOR BIOMOLECULAR RESEARCH**

Brian Manning (Faculty)  
Biology

Lytic bacteriophages are viruses that infect and kill bacteria. Studies so far suggest that as a group, the bacteriophages contain tremendous genetic diversity and a number of authors have suggested that they may represent the greatest reservoir of undiscovered novel genetic sequences. The use of bacteriophages as antibacterial agents in medicine, often referred to as “phage therapy”, has been occurring in eastern european countries for decades and may offer one potential mechanism to deal with the problem of antibiotic resistance. The amount of time between the initial infection of a bacterial cell by a lytic bacteriophage and the occurrence of bacterial cell lysis to release bacteriophage progeny is under genetic control and involves proteins called holins and endolysins. Holins facilitate access to the bacterial cell wall for enzymes called endolysins. Endolysins are bacteriophage-encoded enzymes that catalyze the lysis of bacterial cells at the completion of the phage lytic cycle and are of potential interest as antibacterial agents. My research is focused on developing a new automated platform for studying bacteriophage genomics and the endolysin enzymes. While the full scope of this research involves robotics, computer programming, and biomolecular techniques, a necessary first step of this process has been the creation of an artificial intelligence program for identifying different bacteriophage plaque phenotypes and using those phenotypes to identify genetically distinct bacteriophages. The design of this program allows integration with the automated instrumentation and is intended to allow for significant future expansion.

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**INCORPORATING BLOGS IN THE CLASSROOM: USING BLOGGING TO ASSESS WRITING,  
FACILITATE ENGAGEMENT AND EVALUATE STUDENT ATTITUDES**

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Journalism

Matthew Kruger-Ross (Graduate student)  
North Carolina State/Department of Curriculum, Instruction & Counselor Education

Given the rise of technologies such as Google+, foursquare, and Instagram, blogs and blogging, which represent one of the foundational building blocks of social media and web-based technologies, may have lost some educational status. The new technology has prompted many educators to move beyond blogs to explore other platforms to facilitate learning and reflection in their classrooms. However, this move may be done without truly realizing and embracing the simplicity and functionality of blogging and the benefits of blogging in evaluating students. The authors argue blogging should remain at the forefront of conversations surrounding building classroom communities and serve as a valuable tool in evaluating student work, attitudes and engagement. Also, the authors include tips for best practices when using blogs to evaluate engagement and to evaluate learning.

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## **SHOUTS, ECHOS, AND CRIES FROM THE FIELD: AN EXAMINATION OF FIELD-BASED PRACTICE IN GRADUATE EDUCATION CLASSES**

Dorothy Valcarcel Craig (Faculty)  
Womack Family Department of Educational Leadership

This action research study adopted a qualitative stance in examining perceptions of fieldwork held by graduate students enrolled in field-based classes as part of the ESL Add-On Endorsement program. Within the qualitative framework, the study employed systematic procedures of grounded theory. The broad goal of the study was to develop a theory in order to provide explanations regarding process, actions, tasks, interactions, and research involved in fieldwork. Data were collected over a three-month period and consisted of interviews, surveys, online discussions, artifacts, and field journals. Analysis utilized open, axial, and selective coding, which enabled categorization, development of attributes, and the identification of patterns and themes. Analysis continued throughout the data collection period as units were examined and theory was established and grounded in data, codes, themes, and patterns. Findings indicate that—although fieldwork presents numerous challenges to graduate students who are also practicing teachers—the benefits prove to be assets in preparing to work with linguistically diverse learners. In addition, participants provided feedback regarding the relevancy of creating in-depth profiles of learners, schools, and communities that serve second language student populations.

\*F24

## **OLD NASHVILLE AREA THEATRES AND SITES**

Richard Hansen (Faculty)  
Speech and Theatre

Susan Tennesen (Undergraduate)  
Art

This exhibit offers a photographic record of selected locations in and around Nashville of old theatres that either have closed or are no longer operating specifically as theatres. Today's generation of students can rarely experience a visit to what could be traditionally called a neighborhood theatre, and most students only know the wide variety of movie choices available at a multiplex. Even the Belcourt, Nashville's oldest extant theatre from the Silent Era, operates as a twin cinema, and the Tennessee Performing Arts Center (TPAC) houses three venues under one roof. The photos document some remnants of bygone days that members of the MTSU community may not know still survive. In the event a closed venue is later demolished, these photos acquire more historic value. The selection of Nashville area sites is not meant to be comprehensive, and there remains room for future additions. Pictures and layout by MTSU Photography student Susan Tennesen; research and captions by Dr. Richard Hansen, Department of Speech and Theatre.



\*F25

## **MTSU THEATRE IN SECOND LIFE: A VIRTUAL LABORATORY**

Virginia Donnell (Faculty)  
Speech and Theatre

This presentation will illustrate how a visual representation of the Middle Tennessee State University (MTSU) theatre spaces was created in *Second Life* on the MTSU Island for the purpose of student and faculty study, creative activity and performance. The *Second Life* platform provides an immersive, three-dimensional, virtual environment that will enrich and enhance the Theatre and Dance curriculum. These spaces are used as visual learning tools for the Theatre Appreciation course and as project spaces for theatre design classes and co-curricular activities. The two theatre spaces developed in *Second Life* are the Tucker Theatre and the Studio Theatre. The project covers the interior stage spaces only. These spaces are the instructional and co-curricular laboratories for the MTSU Theatre and Dance programs. The purpose of this project was to provide a virtual three-dimensional learning environment for all formats of existing Theatre and Dance courses – online, face-to-face, and web-assisted. This presentation will demonstrate how the virtual reality simulation of the Tucker Theatre and Studio Theatre was created as realistic representations of the existing MTSU theatre stages and how the spaces are used as teaching laboratories for theatre courses.