

# ANDE SUMNER

Physician Assistant Program

B.S. Zoology; Ph.D Exercise Physiology, Auburn University

Faculty Mentor: Dr. Deborah Morris

Hobbies: French horn, swimming, running, cycling, snowboarding, coaching soccer

## INFLUENCE OF A MARCHING SNARE DRUM LUMBAR BELT ON CONTACT PRESSURE AND ITS CLINICAL RELEVANCE

Each year, thousands of students participate in marching band. While not as physically demanding as football or soccer, marching band is a physical activity that places great demands on the adolescent body. Recently, clinicians such as the athletic trainers working with schools and physical therapists have noticed an increase in the number of injuries to these athletes.

Band members on the drumline suffer injuries due to the unique and restricting nature of the instrument. Drumline members carry the instrument (load) anterior to the body with the only points of contact on the body being at the shoulders and across the abdominal area.

One of the major complaints reported to clinicians has been shoulder pain, pressure, discomfort, and muscular soreness that cannot be alleviated due to the constraints of the equipment and to performance requirements. Therefore, the purpose of this investigation was to determine the amount of skin contact pressure at the shoulders and abdominal region where the drum makes contact with the body of individuals wearing a standard marching drum system, and to determine whether or not adding a lumbar belt to the drum carrier would alleviate the effects of this particular anterior load carriage.

The results indicated that, when the researcher-designed lumbar belt was used, the participants experienced lower contact pressure values at the shoulders and increased pressures at the abdominal region, indicating a redistribution of pressure and load to the belt, hips, abdomen, and pelvic girdle and off of the shoulders. Therefore, it can be concluded that using a lumbar belt with a standard marching drum system ameliorates skin contact pressure and discomfort at the shoulders, potentially decreasing the occurrence of injuries such as lower-back strains and nerve impingement at the shoulder as well as increasing the participants' level of comfort while bearing

the load of the instruments. This lumbar belt proved to have potential to act as supportive equipment, similar to knee and ankle braces, for adolescent musicians who may experience shoulder and back discomfort as a result of marching band participation.

The results reported in this manuscript provide the practitioner with information about the newest patient population presenting in the clinic, the uniqueness of this mechanism of injury, and one proposed solution that shows the benefits of a lumbar belt and why a device of this design worked and therefore could provide athletic trainers, physical therapists, and clinicians a first-line non-pharmaceutical treatment option for these patients.

# BRITTANY T. FANN

Master of Business Administration Program

B.S. Biology, Campbell University

M.B.A., Methodist University

Faculty Mentor: Dr. James Marcin

Hobbies: Camping, hiking, golfing, spending time with her children

## ESTABLISHMENT OF A MUSCADINE GRAPE VINEYARD WITHIN THE PARAMETERS OF AN EXISTING AGRICULTURAL OPERATION: AN ESTIMATED INVESTMENT ANALYSIS

This study is intended to provide information on the costs and revenue associated with the establishment and maintenance of a muscadine grape vineyard as an expansion of an existing agricultural operation. Production specifics will also be discussed including instructions for trellis establishment, fertilization, pest management, and harvest, in order to provide a baseline for those considering muscadine grape production. Finally, real world costs and revenue will be utilized to calculate net present value, internal rate of return, and breakeven point for the discussed fictitious vineyard. These calculations will allow potential growers to assess the overall financial practicality of vineyard establishment.

# JOSHUA FULBRIGHT

Master of Justice Administration Program

B.A. Criminology, North Carolina State University

M.J.A., Methodist University

Faculty Mentor: Dr. Eric See

Hobbies: Carolina Hurricanes hockey season ticket holder, Mudcats baseball, Durham Bulls basketball, golfing

## POSTER

### EXAMINING THE ORGANIZATION-PUBLIC RELATIONSHIP BETWEEN COMMUNITY PROPERTY MANAGERS AND THE CARY POLICE DEPARTMENT: A PROGRAM EVALUATION OF THE PROJECT PHOENIX PROGRAM

Police departments globally are concerned with deterring crime and reducing issues impacting quality of life. The Town of Cary Police Department in Cary, North Carolina sought a progressive means of addressing crime and quality of life issues in specific populations in the town. Multi-family communities, primarily apartments, are the specific focus of a recently formed program called Project PHOENIX. For over two years, the program has targeted the deterrence of crime and reduction of quality of life issues through a voluntary partnership between police and community managers.

This research will examine a number of programs seeking to accomplish similar objectives through different means. Relationships have a direct impact on the effectiveness of a partnership and thus the relationships between the police department as an organization and community managers as their public will be measured for program evaluation. Through the use of a reliable survey instrument, perceptions across various components may be measured to determine the strength and type of organization-public relationship formed through the program. A promising future for all stakeholders is revealed following an in-depth analysis of feedback that shows a growing, mutually-beneficial relationship between police and community managers of Project PHOENIX.

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# GRADUATE RESEARCH SYMPOSIUM

APRIL 14, 2014



## PRESIDENT'S WELCOME

Methodist University is committed to providing opportunities for student research at the undergraduate and graduate level. Such experiences enable students to refine their skills, make informed choices regarding their future career path, and enhance their chances for success in professional appointments and further graduate study.

I join our amazing faculty in offering my congratulations to the students who have developed research or creative projects, and in celebrating your significant accomplishments. Best wishes in what I know will be a life full of intellectual curiosity and a perpetual quest for knowledge. Your problem solving skills have led to your success at Methodist and will ensure your continued success in any endeavor you undertake.

Dr. Ben E. Hancock, Jr.  
President



## DIRECTOR'S WELCOME

The inclusion of Methodist University's Graduate Programs during the third Annual Methodist University Symposium week is exciting. The Center for Undergraduate Research and Creativity is designed to promote undergraduate student work. However, this year's inclusion of graduate students is the next logical step in increasing the

visibility of our students' projects by promoting and sharing graduate-level projects with the Methodist University community.

Dr. Clay Britton  
Director, Center for Undergraduate Research & Creativity

# KIMBERLY C. STEFFEN

Master of Education Program  
B.A., English and Biology, Elon University  
M.A., Creative Writing and Editing, George Mason University  
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## WORDS THEIR WAY AND READING COMPREHENSION IN STANDARD ENGLISH 3 CLASSES AT TERRY SANFORD HIGH SCHOOL

Too many high school students need remediation to improve reading skills when they enter higher education. The numbers are shocking. By some reports, 64 percent of first-year North Carolina community college students and 30-40 percent of first-year college and university students need some form of remediation (Stoop, T., 2011). The good news is that there is hope for students who are already behind when they get to high school. The bad news is that most high school teachers are not trained in reading skills remediation. Even English teachers considered themselves content-area teachers. Research indicated that one of the best ways to increase reading comprehension in adolescence is through word study. Word study is the integration of reading, spelling, and

vocabulary instruction into small group instruction based on needs assessment. Word study is a great departure from the whole group instruction that most high school teachers use in their classrooms.

The Action Research Question is as follows: Does the use of Bear, D.; Inverizzi, M.; Templeton, S.; and Johnston, E.; (2012) Words Their Way program increase reading comprehension in standard English 3 students at Terry Sanford High School? This is an important question because teachers need to know what works for their students. Ordinarily, students are only with each teacher for four months. Teachers need to make the most of the time they have with students.

Students were given a pre and post CORE Maze Reading Test and identified as benchmark, strategic, or intensive readers. They were also given a pre and post test with the Words Their Way Spelling Inventory for individualized placement within the spelling and vocabulary development program.

The conclusions indicate that gains in reading comprehension were from modest to strong for most of the general education students. For the exceptional children, the gains were somewhat less. The implication is that further study is required to see if these results remain consistent over time as researchers learn more about the program.

# JONATHAN LEE

Master of Justice Administration Program  
B.A., Criminology, University of Mount Olive  
M.J.A., Methodist University  
Faculty Mentor: Dr. Mark Bowman  
Hobbies: Golf, bass fishing, firearm collecting

## EVALUATING THE NORTH CAROLINA BASIC LAW ENFORCEMENT TRAINING CANDIDATES AND ENTRY REQUIREMENTS

The Basic Law Enforcement Training (BLET) program in North Carolina has long been the initial training requirement that individuals complete to become certified law enforcement officers in North Carolina. This program uses a structured training method that prepares everyday citizens for duty as protectors of the populations they serve. As with every other profession, it is necessary for the law enforcement profession to gradually raise its standards in order to hire the most suitable candidates possible to fill vacancies. Other than reading and writing comprehension, BLET entry requirements have not changed noticeably for quite some time. It may be beneficial to the law enforcement profession and the populations they serve to see additional requirements mandated to the BLET admission process.

The purpose of this research was to explore the mindset of those closest to the BLET programs and to determine if a need exists for additional requirements to be added in the admission process. During this research, 41 BLET directors and 124 BLET instructors were surveyed on a variety of topics pertaining to BLET admission requirements. The surveys were developed to elicit the opinions of individuals directly involved with BLET cadets on a regular basis and to seek their input regarding the quality of the cadets and the necessity for additional admission requirements.

The results of the surveys showed instructors and directors both believe that the minimum educational requirement should remain at the high school graduate level. Instructors did show a significant difference when surveyed about the need to add additional steps into the BLET admission process. Furthermore, directors and instructors both indicated the current BLET age requirement is adequate. Lastly, BLET directors believe that the quality of cadets is higher than BLET instructors believe it to be.

