

**GSA Grant Cycle 3**  
**Research and Conference Descriptions/Abstracts**  
**A-Z by student first name**

Abigail Kimm  
Counseling Psychology, PhD  
2017 Rocky Mountain Psychological Association Annual Convention  
Salt Lake City, Utah, United States of America  
First Author: Yes

**Contextualizing a Taboo: Relational Touch in Psychotherapy**

Touch is a powerful dialect in the language of intimacy. It's connections with healing disciplines are ancient, predating modern medicine to religious and shamanic practices (Smith, Clance, & Imes, 1998). This historical thread continues through the roots of Western medicine to psychiatry, which served as a bridge between the fields of physical and mental health. Immediately preceding the formal advent of psychotherapy in the late 1800s, psychiatry included a large repertoire of physical techniques intended to alter the mind (Levitan & Johnson, 1986; Wilson, 1982). Sigmund Freud (1856-1939), who is credited with the founding of psychoanalysis, employed physical contact as a technique (Kertay & Reviere, 1993).

Despite its central role in the emerging identity of psychotherapy, many mental health clinicians consider the therapeutic use of touch taboo. Contemporary risk management policies cite the litigiousness of society and the potential for sexual exploitation in discouraging physical contact between psychotherapists and clients (Gutheil & Gabbard, 1993; Williams, 1997). Scholars trace the initial shift to a sharp disagreement between Freud and a member of his inner circle, Sándor Ferenczi (1873-1933; Haynal, 2005; Hunter & Struve, 1998). Sources such as Ferenczi's Clinical Diary and the translated letters between Freud and Ferenczi provide rich description of the associated conflicts. The purpose of this poster is to present expanding layers of the contexts in which this historical split occurred.

The theoretical lens is based on Bronfenbrenner's (1992) Ecological Systems Theory. Beginning with the microsystem, the researcher explores the personal characteristics, interactions, and professional roles of the men at the heart of the conflict. Moving one layer out, theoretical considerations and the larger psychoanalytic framework represent an integration of the meso- and exosystems, which constitute interrelationships between microsystems as well as links between settings within and just beyond the immediate context. Beyond the individual conflict, the direct influence of the persons and interactions, and the theoretical underpinnings of mid-layer connections, the fourth stratum, the macrosystem, is comprised of cultural factors such as Western philosophy and societal mores. Lastly, the researcher evaluates the transitions and events that project the Freud-Ferenczi disagreement to contemporary history in a discussion of the chronosystem. Thus, this poster includes an analysis of persons, theoretical positions, culture, and contemporary remnants that contextualize the development of a pivotal rejection of therapeutic touch in nascent psychoanalysis.

Despite its continuous presence, the history of touch in psychotherapy is laden with controversy (Smith, et al., 1998). The specific conflict between Freud and Ferenczi serves as a poignant archetype for discussing the cultivation and proliferation of its provocative nature. This is the legacy passed down to psychologists today. Henle (1976) argues that a strong understanding of history enhances thoughtful decision making in the present. Psychologists may use this historical analysis as a framework for evaluating current influences on their own policies regarding the use of touch. More broadly, they may

generalize this theoretically-based thinking process to examine contextualizing influences various aspects of their work.

Aimee Massafra  
Special Education, PhD  
Council for Exceptional Children 2017 Special Education Conference and Expo  
Boston, Massachusetts, United States of America  
First Author: No

### Get Ready for the Real Deal: Effective and Meaningful Strategies for IEP Meeting Practice

IDEA mandates highlight the spirit of IDEA as one that places great value on parents as meaningful IEP team members and advocates for their child's educational programming. Despite the legal requirement that IEP meetings must include parents in all educational decisions, research indicates the spirit of the law appears to be fractured. Over three decades of research has shown parents have negative experiences with IEP meetings, including feeling ignored, excluded, and in some cases, challenged during the meeting. This divergence between the letter of the law and actual implementation of the law has contributed to disputes over services about a child's educational programming, with some situations leading to either a request for, or an actual due process hearing.

While IDEA states the required components of an IEP document and IEP team membership, there is a lack of research-based guidance regarding effective procedures that can be used to conduct the meeting to promote active parent participation and ensure all team members are involved in decision-making while creating the IEP. The law emphasizes the "what" of the IEP, rather than the "how" of the meeting. Without strategies, educators are left to conduct IEP meetings based on their own training. Many educators lack instruction specific to IEP meeting practice and the development of collaborative parent-school partnerships. The presentation will provide strategies designed to enhance the IEP meeting process. All major areas of special education are addressed due to the all-encompassing influence IEP meetings can have on students' educational planning.

Using original research conducted by special education faculty members at UNC, this presentation includes IEP meeting strategies collected from several studies. The strategies presented are directly applicable to current IEP meeting practice, and do not require any additional training. The implementation of these strategies, including teacher preparation programs or professional development opportunities could provide educators with the skills necessary to effectively prevent and resolve conflict at the IEP meeting level. Most importantly, the application of these strategies could lead to more directed and aligned meetings with all team members actively participating and creating a meaningful program designed to meet the academic, behavioral and social needs of the student. Existing problems with IEP meetings could be ameliorated, including the reported lack of trust between parents and professionals, poor team culture, and family members being treated as unequal partners. Using qualitative interview methodology, 60 participants described their experiences with non-facilitated and facilitated IEP (FIEP) meetings. Participants in this study represented 13 states and included administrators, facilitators, advocates, educators and parents. Interviews took place over the telephone and followed a protocol with open-ended and follow-up questions. Interviews were transcribed verbatim and analyzed using open, axial, and selective coding procedures. Results indicated participant experiences with FIEP meetings were overwhelmingly positive. Of noteworthy finding, the participants' negative experiences with non-FIEP meetings directly contrasted with their positive experiences with FIEP meetings. Two defining components of the FIEP model surfaced: (a) collaborative components for IEP meeting enhancement, and (b) procedural practices used to enhance the organization and outcome of IEP meetings.

Ainsley Oates

Sociology: Applied, MA

2017 The Pacific Sociological Association Conference

Portland, Oregon, United States of America

First Author: No

Preventing Sexual Abuse with Gender Equality Education: Program Evaluation Results from a Community-Based Education Program for Children

Prevention education programs aimed at empowering children to speak up if they are experiencing sexual abuse have largely been administered in school settings, and are segregated by sex (Zwi et al., 2007). However, not all elementary school administrators and parents are willing to expose students to comprehensive programming, which limits access to the target population. This leaves a gap in some communities which nonprofits such as Sexual Assault Victims Advocates (SAVA) aim to fill by partnering with community organizations that serve children regularly. The present study presents data evaluating a SAVA summer program aimed at prevention education for a mixed-sex group of boys and girls. Pre- and post-test results indicate that children enrolled in the program experienced a significant increase in self-esteem and self-efficacy indicators, as well as an increase in feelings that boys and girls should be treated equally. Results are discussed in light of the sociological significance of including mixed-sex prevention education paired with perceptions of gender inequality. This study also presents “best practice” ideas for mixed-sex prevention education programs, community perceptions of prevention education and the role schools can play in improving outcomes for children.

Alees Seehausen  
Educational Mathematics, PhD  
2017 Annual Conference of the Association of Mathematics Teacher Educators  
Orlando, Florida, USA  
First Author: Yes  
Math Teacher Talks in Secondary Mathematics Teacher Preparation

The goal of our AMTE conference presentation is to disseminate the work being done within our Secondary Mathematics Teacher Preparation Program here at UNC. In particular, we have implemented what we call "Math Teacher Talks" during which preservice mathematics teachers launch or summarize a mathematical task in order to practice their teaching in a safe and welcoming environment. During the presentation, we will provide an overview of our program and its aims, conduct a sample Math Teacher Talk, and then ask for feedback from the professionals in the audience as to how to improve our structure and implementation. This presentation will expose our ideas to experts in the field of Mathematics Education and will most likely stimulate ideas about how to continually improve our teacher education program at UNC.

I am the lead presenter and will facilitate the bulk of the presentation.

Alex Traugutt  
Sport and Exercise Science: Sport Administration , PhD  
2017 College Sport Research Institute  
Columbia, South Carolina, United States of America  
First Author: Yes

#### Salary Disparity and Team Performance: Evidence from the Football Bowl Subdivision

Salary disparities and their impact on performance have long been a topic of research and debate in both the business and sport sectors. In recent years, the salaries paid to college football coaches have become a controversial topic, especially when one considers the amount of money that universities invest in athletics, and the fact that the NCAA prohibits college football players from receiving pay for the product they produce. This non-price competition leads to additional investment in the unrestricted factors (coaching pay), leading to an inefficient allocation of resources (Schwarz & Rascher, forthcoming). Given these stark disparities, the purpose of this study was to assess how intra-staff salary disparity effects team performance to determine what type of pay structure is best suited to maximize performance in the collegiate football setting.

Previous literature that has focused on the impact of pay disparities on team performance has done so primarily through the lens of players. Annala & Winfree, (2011) and Mondello & Maxcy (2009), evaluated the effects of players' salary dispersion on team performance in professional leagues in North America using the Gini index as their measure of inequality. In both studies, a larger salary dispersion (higher Gini index) had a negative effect on team performance. While clear and compelling evidence is present to suggest that larger pay gaps among professional athletes have a negative impact on team performance, there is little research present to suggest how salary disparities among coaches' impact performance. Therefore, there is a clear opportunity to apply the same type of analysis to collegiate football coaching staffs given their well-documented salary increases.

The data used in this study featured the salaries paid to football coaches at public institutions from 2009-2015 and was compiled using the USA Today database. Year-by-year Gini indices were then calculated for each program for a total of 588 observations. A series of 12 simple linear regressions, segmented by conference, were then conducted to predict performance outcomes based on the calculated Gini indices. The decision to segment the sample by conference was done to control for team quality that is not controlled for by win percentage.

Ultimately, there were two conferences for which the Gini index was a statistically significant predictor of winning percentage; the Big Ten and the Southeastern Conference (SEC). In both conferences a higher Gini index (larger salary dispersion) was associated with a higher win percentage. These findings would initially suggest that a hierarchical pay structure, in which pay is more widely dispersed and less equal across pay tiers, is the best-suited model for collegiate football coaching staffs. The results of this study can be utilized by institutions when analyzing the success of their football program in relation to the way in which they compensate their coaches.

As first author, my contribution to this research was extensive. While I was included in all facets of the research process, my primary contributions came in the form of synthesizing previous literature, collecting the data, and discussing our findings in the context of sport management.

Ali Kakakhel  
Accounting, MACC  
2017 Annual BAP Regionals  
Denver, CO, USA  
First Author: No  
Best Practices

Our presentation is about strategic planning and will discuss the following topics: How Our Chapter Developed Its Objectives for the 2016-2017 Academic Year: An important part of leadership comes from developing a vision for how the chapter seeks to build on its past and prepare for its future. Using 2015-2016 as the base year, how were current year [2016-2017] objectives developed? Moreover, what current-year actions [“inputs’] contributed to accomplishing these objectives. Further, what results [“outputs’] are expected to provide feedback [or have provided feedback] regarding the impact on your chapter. Measurability of results [“outputs’] enhances your assessment of what did or did not work. Examples of measurability could include changes in chapter membership demographics over time, changes in membership size over time, interactions among competitor student groups in addition to countless others.

Alice Wille  
School Psychology, PhD  
National Association of School Psychologists 2017 Annual Convention  
San Antonio, Texas, USA  
First Author: Yes  
Strengths-Based Perspectives from Rural ELL Teachers Working with Refugees

Currently, over 19.5 million refugees have been forcibly displaced from their homes (UNHCR, 2014) and of these people, three million have relocated to the United States since 1975 (U.S. State Department, 2015). Over half are children under the age of 18 (UNHCR, 2014) and are expected to integrate into their new host communities and attend school. Challenges facing refugee students include trauma exposure, unmet mental health needs (Ellis et al., 2013), and limited or interrupted education (Roxas, 2010). As a result, they may need extended one on one instruction time (Gichiru, 2014) and support with language and communication (Hurley, Medici, Stewart & Cohen, 2011).

Teachers for English Language Learners (ELL) are often vital contributors to the academic success and acculturation of refugee students because of their direct service role. In fact, according to Weinstein and Trickett, "English Language Learner (ELL) teachers have perhaps the most important role in school for immigrant and refugee students" (2016, p. 24). By understanding their relationship with refugee populations, a deeper recognition of their role and more comprehensive training can be developed. In some school districts, especially those in rural areas that have limited community resources, the ELL teacher may become the most important contact for both refugee students and their families.

Many refugees migrate from their initial receiving place in large urban areas to rural agricultural communities in search of employment. As these rural communities attempt to adapt to the unique needs of their newcomer populations, ELL teachers are an important resource for supporting refugee students but also may not feel fully prepared for their work (Hansen-Thomas, Grosso-Richins, Kakkar, & Okeyo, 2014). Additionally, they may experience high stress and turnover rates (Weinstein & Trickett, 2016). These findings highlight the importance of furthering our understanding of the role ELL teachers fulfill working with refugee families in rural areas.

Working with refugee students and their families brings new linguistic and cultural diversity, expectations, and challenges that ELL teachers must learn and navigate. ELL teachers have the occupational capacity to fulfill an integral role in building environmental support for refugee students, thus contributing to their resilience and positive resettlement experience. However, more information to best support ELL teachers is needed, especially for those in rural communities. This phenomenological study will examine the perceptions of ELL teachers who work with refugee students in rural communities. Originally part of a larger study, this presentation specifically focuses on the findings from eight to ten interviews with ELL professionals in both the Western and Midwestern United States. Themes from the semi-structured interviews including successes, challenges, and strategies for learning about the academic and cultural backgrounds of families will be presented. Attendees will be provided with specific examples of inclusive programming and cultural exchange and celebration. The cultivation of strength-based perspectives of refugee people will also be shared to help school psychologists advocate for their refugee populations, support fellow staff, and partner with ELL teachers in their efforts. Finally, useful resources for schools experiencing the arrival of refugee students will be provided.

Anna Margiotta

Chemistry: Education, MS

Spring 2017 American Chemical Society Conference

San Francisco, California, USA

First Author: Yes

In vitro anti-neoplastic activity of specific phytocannabinoids of *Cannabis sativa*

Cancers are a common cause of morbidity and mortality worldwide, and treatment for these diseases is often non-specific, producing many negative side effects. Development of drugs with high efficacy and specificity are major goals of drug discovery efforts. Natural compounds, particularly those from plants, have high potential to yield potent therapeutics and have a long track record of success; nevertheless, there are thousands of potential candidate species which could be investigated. Phytocannabinoids from *Cannabis sativa* have been reported to possess a variety of medicinal properties, including anti-proliferative activity in animal models toward specific solid tumors, including brain, pancreas, breast, prostate, colon, liver and lung cancers. As part of a more in-depth study to develop a cannabinoid-based targeted treatment of malignant tumors, we are currently investigating the in vitro effects of select cannabinoids on several human cancer cell lines (melanoma, glioblastoma, pancreatic, breast, lung and colon). Single-cell layer cultures were treated with increasing levels of a purified cannabinoid, and changes in cancer cell populations were detected using an MTT-based cell proliferation assay. Initial results suggest that this cannabinoid possesses potent anti-proliferative effects against several types of cancer cells. Studies currently in progress evaluating the effects of these cannabinoids on several cancer cell lines will be reported. These cannabinoids may represent viable candidates for further therapeutic evaluation.

Alison Sheesley

Counselor Education & Supervision, PhD

Medicaid Expansion, Medicaid Reimbursement Methodologies, and Counselor Employment at Federally Qualified Health Centers

Advocacy for the counseling profession necessitates a thorough understanding of the factors influencing the hiring and reimbursement of licensed professional counselors. The Patient Protection and Affordable Care Act (ACA) enacted several health care reforms that may influence the utilization of mental health services and the employment of mental health professionals. These reforms included the option for states to expand their Medicaid population (effective January 1, 2014), mental health parity requirements for most insurance plans including Medicaid plans, and increased funding for Federally Qualified Health Centers (FQHCs or health centers). FQHCs, created by Congress in 1989, provide primary care services, including mental health services, to approximately 24 million Americans annually and function as a vital safety net for medically underserved communities and populations.

The largest source of revenue for FQHCs is Medicaid, and FQHCs receive enhanced reimbursement for services provided to Medicaid patients—known as the Medicaid Prospective Payment System (PPS) rate. Federal law, however, explicitly approves only certain health care professions as billable PPS providers. Licensed clinical social workers, along with psychologists and psychiatrists, are included as billable PPS providers under federal law, but not licensed professional counselors. Some states have expanded the list of health care professions able to generate billable PPS encounters at FQHCs to include licensed professional counselors. It is vital for the counseling profession to understand the impact of these reforms and the interplay of federal and state policies related to reimbursement upon the mental health industry.

The optional Medicaid expansion provision of the ACA created an opportunity for a natural experiment to compare mental health service utilization and employment at FQHCs in Medicaid expansion states versus non-Medicaid expansion states. This quasi-experimental study will first test the causal impact of Medicaid expansion on the number of mental health visits and full-time equivalent (FTE) mental health staff at FQHCs, using state-level data gathered from FQHC reports submitted annually to the Uniform Data System. A count model difference-in-differences analysis strategy will compare utilization and employment numbers in 2012-2013 (pre-Medicaid expansion) and 2014-2015 (post-Medicaid expansion) between Medicaid expansion states and non-Medicaid expansion states. Then, a two-sample test of proportions utilizing data from a research-developed employment survey will examine the relationship between states approving counselors and states not approving counselors as billable FQHC mental health providers under the enhanced PPS reimbursement and the proportion of licensed professional counselors (LPCs) to licensed clinical social workers (LCSWs) employed at FQHCs. It is essential for counselors to understand the impact of federal and state health care policies, such as Medicaid expansion, increased funding of FQHCs, and various Medicaid reimbursement methodologies, in order to successfully advocate for the profession in the dynamic health care landscape.

Amy Schneider  
Speech Language Pathology, MA  
California Speech-Language-Hearing Association 2017 Annual Convention and Exhibition  
Pasadena, California, United States of America  
First Author: No  
Etiology, Treatment and Diagnosis of Pediatric Stroke

Strokes are commonly known to affect the elderly population, but unfortunately the pediatric population is also at risk. Pediatric strokes are common and can have detrimental consequences and effects on a child's overall language, motor, and cognitive development.

This presentation is designed to synthesize the research literature about pediatric strokes including causes, risk factors, clinical presentation, diagnostic measures, and imaging techniques. It will also discuss gender differences in pediatric stroke occurrence, functional outcome of children after a stroke, social and emotional effects on caregivers and families, therapeutic methods, and management techniques in pediatric stroke recovery.

The methods used for this research synthesis included a review of relevant and current research with the use of multiple databases. This synthesis analyzed the research from peer reviewed journals including: The Journal of Pediatrics, Developmental Medicine and Child Neurology, Journal of Child Neurology, Brain and Behavior, Stroke, Pediatrics, Nursing Research and Practice, and The Journal of Neuropsychiatry and Neurosciences.

As a result, this synthesis highlighted the need for further research to understand the acute and long-term social and emotional effects of pediatric strokes on caregivers and families. Additionally, improvement of assessment tools is necessary to predict functional outcome for pediatric stroke patients. Research is also needed to develop effective treatment protocols for pediatric stroke patients in the acute and recovery stages. Increased awareness and research in these areas will aid in the reduction of misdiagnoses and delayed diagnoses of pediatric strokes.

The presenter, Amy Schneider, B.S., conducted the entirety of this research synthesis under the supervision and guidance of Suzanne M. Welty M.A., Ed.D., CCC. Amy Schneider, B.S. will be accompanied by Suzanne M. Welty M.A., Ed.D., CCC at the convention during the California Speech-Language-Hearing Association 2017 Convention and Exhibition poster presentation.

Andrew Kropp

Music: Performance: Woodwinds, DA

2017 North American Saxophone Alliance Region 2 Conference

Las Cruces, New Mexico, United States of America

First Author: No

The Front Range Saxophone Quartet performs: "Prodigal Child" by John Fitz Rogers

This presentation is being given by the Front Range Saxophone Quartet (FRSQ). FRSQ was founded in 2013 as a University of Northern Colorado Chamber Ensemble and fulfills the chamber music requirement of instrumental performance degree programs. The group is coached by faculty member Dr. Andrew Dahlke.

The North American Saxophone Alliance is the major organization in the United States and Canada and presents conferences across the country that are attended by the best University students and professionals in saxophone. This region two conference features saxophonists in Colorado, New Mexico, Arizona, Utah, Nevada, California, and Hawaii.

Our quartet has been working towards this performance since the Fall semester. We will be performing a well-respected and challenging work, "Prodigal Child." This performance will showcase the graduate school and the University of Northern Colorado.

Andrew Schoenherr  
Biological Sciences: Thesis, MS  
Plant and Animal Genome Conference XXV  
San Diego, CA, USA  
First Author: Yes

The mycorrhizal status of potatoes alters plant physiology and the fitness of a chewing insect pest

Arbuscular mycorrhizal (AM) fungi naturally occur in soils and are known to form symbiotic relationships with plant roots, mainly aiding in the acquisition of nutrients such as phosphate. In addition, some mycorrhizal plants may exhibit enhanced shoot growth and tolerance to biotic stresses such as insect herbivory. While previous data indicate that tomatoes and other plants display mycorrhizal-induced resistance to plants, the data surrounding potatoes lacks. This research involves potato (*Solanum tuberosum*), the cabbage looper (*Trichoplusia ni*) a generalist leaf-chewing insect in its larval stage, and the generalist AM fungus *Glomus intraradices*. The goal of this research was to investigate the potential underlying mechanism involved in mycorrhiza-induced resistance against cabbage loopers. The impact of this tripartite interaction was evaluated by: (a) comparing biomass accumulation of cabbage looper larvae both before and after feeding on mycorrhizal/non-mycorrhizal potato plants, (b) assessing plant physiology status, and (c) measuring plant gene expression. Potato plantlets, propagated using tissue culture, were grown under laboratory conditions and were inoculated using a soil-based inoculum of *G. intraradices*. Once sufficiently colonized, plants were exposed to cabbage looper herbivory for 5 or 8 days to examine short- and long-term effects of feeding. Once insect pests were removed, physiological parameters including water status, photosynthesis, and chlorophyll abundance were measured. Data were analyzed using One-way ANOVA and t-tests ( $\alpha=0.05$ ) Our results showed that cabbage looper larvae accumulated less biomass after 8 days of feeding on mycorrhizal plants compared to non-mycorrhizal plants. Given the duration of this study, mycorrhizal plants only exhibited minor changes in plant physiology, including increased shoot weight. Interestingly, transcript levels of insect-induced defense genes significantly increased in mycorrhizal plants that were damaged by cabbage loopers compared to damaged non-mycorrhizal plants providing evidence for mycorrhiza-induced resistance. These data indicated that mycorrhiza could potentially serve as environmentally-conscious alternatives to both fertilizers as well as pesticides.

Anna Goncharova  
Sociology: Thesis, MA  
2017 The Pacific Sociological Association Conference  
Portland, OR, USA  
First Author: Yes  
The Attitude of Dysfunctional Families Towards Outside Help

To provide better services, it is important to understand the attitude of dysfunctional families towards outside help. Twenty in-depth interviews were conducted with adult members of 20 different dysfunctional families (12 women and 8 men) in the city of Krasnoyarsk, Russia. For the purpose of this study, dysfunctional families are defined as people who have alcohol and/or drug addictions, delinquency and behavior problems, high level of aggression, lived in poverty and were unemployed. The model that emerged from this study is grounded in the participants' experiences. All respondents were unhappy with the services they were provided. Members of dysfunctional families did not feel like the professional help they had received was "helpful enough". Participants described professionals (social workers, policemen, doctors) as "useless" and "incompetent." The respondents were also asked to portray how they see their ideal life. Results showed that the members of dysfunctional families have a common formula that can be stated as "I DON'T WANT..." (examples: "I don't want my husband to keep drinking"; "I don't want my son to spend too much time on the streets"). None of the respondents described what she/he wanted to have in life, but, instead, what she/he wanted to get rid off. Results indicated that professionals needed to start their work from building the positive and detailed image of the future with members of dysfunctional families that could be described in the formula "I WANT" and show clients how services could help them achieve it. This would give members of dysfunctional families anchors to see how their situation changed and evaluate the work of professionals in the positive way.

Anna Johnson  
Educational Psychology, PhD  
2017 Rocky Mountain Psychological Association Convention  
Salt Lake City, Utah, USA  
First Author: Yes

#### Behavioral Measures of Abstraction and Memorization: Implicit and Explicit Processes

The abstractor-memorizer distinction (McDaniel, Cahill, Robbins, & Weiner, 2013) states that abstractors derive general rules from exemplars, and memorizers commit specific examples to memory rather than culling from the whole of examples. McDaniel et al. developed a task to thresh out the distinction within individuals. In addition to the function learning task developed by McDaniel, et al. to classify learners as abstractors or memorizers, we explored in this study whether a series of shorter tasks could also be used to make this classification. Fourteen subjects completed four different tasks: 1. the function learning task; 2. a shape averaging task in which they were presented with a shape of two different sizes, and asked to form an average of the two; 3. a color averaging task in which they were shown two different colors, and asked to form an average of the two; 4. a numerical averaging task in which they were given 5 different numbers and had to estimate the average of the numbers shown. The results indicate a trend toward greater speed and accuracy in subjects using abstraction strategies compared to those using memorization strategies; however, the significance of these findings is limited due to small sample size. The tasks hold promise in classifying memorizers and abstractors.

Anna Margiotta

Chemistry: Education, MS

Spring 2017 American Chemical Society Conference

San Francisco, California, USA

First Author: Yes

In vitro anti-neoplastic activity of specific phytocannabinoids of *Cannabis sativa*

Cancers are a common cause of morbidity and mortality worldwide, and treatment for these diseases is often non-specific, producing many negative side effects. Development of drugs with high efficacy and specificity are major goals of drug discovery efforts. Natural compounds, particularly those from plants, have high potential to yield potent therapeutics and have a long track record of success; nevertheless, there are thousands of potential candidate species which could be investigated. Phytocannabinoids from *Cannabis sativa* have been reported to possess a variety of medicinal properties, including anti-proliferative activity in animal models toward specific solid tumors, including brain, pancreas, breast, prostate, colon, liver and lung cancers. As part of a more in-depth study to develop a cannabinoid-based targeted treatment of malignant tumors, we are currently investigating the in vitro effects of select cannabinoids on several human cancer cell lines (melanoma, glioblastoma, pancreatic, breast, lung and colon). Single-cell layer cultures were treated with increasing levels of a purified cannabinoid, and changes in cancer cell populations were detected using an MTT-based cell proliferation assay. Initial results suggest that this cannabinoid possesses potent anti-proliferative effects against several types of cancer cells. Studies currently in progress evaluating the effects of these cannabinoids on several cancer cell lines will be reported. These cannabinoids may represent viable candidates for further therapeutic evaluation.

Anna Pierce

Chemistry: Education, MS

American Chemical Society 253rd National Meeting and Exposition

San Francisco, CA, USA

First Author: Yes

Implementation of Next Generation Science Standards in high schools: Exploratory study

The high demand for a scientifically literate society and workforce led to the creation of the Next Generation Science Standards (NGSS) and their release in April 2013. NGSS is a call to improve science education at the primary and secondary levels and emphasizes the importance of a more concept approach to science. In this presentation, we report on the current state of the research which explores the implementations of the standards (NGSS) at the national level. This research is a phenomenographic study that presents the experience of teachers and experts in the field with the implementation of NGSS. Teachers and experts in the field were asked for their opinions regarding the implementation and changes they have made in their lessons and pedagogy in order to accommodate NGSS. From the open-ended interviews several themes were identified regarding the challenges of what to teach and how to teach, class dynamics, and suggestions on how to improve the process.

Anna Schwabe  
Biological Education, PhD  
Institute of Cannabis Research Conference 2017  
Pueblo, CO, USA  
First Author: Yes

Genetic tools weed out misconceptions of strain reliability in Cannabis sativa: implications for a budding industry

Cannabis sativa is one of the oldest cultivated crops and has been used for food, fiber, fuel, medicine, and a drug for thousands of years. Cannabis is federally illegal and largely illegal worldwide, and, due to legal restrictions, there has been little research published related to Cannabis genetics. Recent legalization efforts have made apparent the need for scientific study. Eight states plus Washington DC legally allow the sale of Cannabis for recreational consumption, and 28 states allow Cannabis for medicinal use. Changes in legal status has resulted in an unprecedented surge of new strains, which are often associated with the Sativa, Indica, or Hybrid type, based on morphology and reported effects. This work adds to a small sample of rigorous research papers examining Cannabis, which have previously established genetic distinctions between hemp and drug type Cannabis (Sawler et al. 2015), some genetic clustering of broad and narrow leaf drug types (Lynch et al. in press), evidence for genetic differentiation among geographically distinct landrace plants (Hillig 2005), and a lack of clustering of chemotypes within strains (Elzinga et al. 2015).

Currently, there are over 2200 reported Cannabis strains. Medical and recreational consumers are confronted with a diversity of Cannabis products with no scientific information to help navigate those products. Although two drug type varieties (*C. sativa* and *C. indica*) are commonly recognized, studies have yet to consistently distinguish them. As Cannabis strains are propagated from clones, no matter the place of origin, flowers of the same strain should be genetically identical. However, reports of inconsistencies suggest names may not be reliable. This is likely the result of decades of unregulated trading and growing. Lack of organization of the taxonomy of strains creates problems for medical and recreational consumers, as products may elicit unexpected or undesirable effects.

This novel research compares samples of the same strain from different sources to determine if they are identical. Genetic data from ten nuclear microsatellites was used to examine the genetic relatedness of 122 samples from 30 strains obtained from 20 recreational and medical dispensaries in Colorado, California, and Washington. As other studies have shown, the multiple genetic analyses performed here found no genetic distinction between described Sativa, and Indica type strains, or Hybrids thereof. Moreover, within 12 popular strains acquired from various dispensaries, 1 strain showed genetic consistency, 7 strains had at least one obvious genetic outlier, while 4 strains showed no genetic consistency. With few exceptions, Cannabis strains are inconsistent across state lines, among cities within the same state, among dispensaries in the same city, and surprisingly even between samples of the same strain from the same dispensary. These results unequivocally demonstrate that strains are not consistently named among dispensaries and that purported Sativa/Indica makeup is not genetically supported.

This research is of interest to academics, plant breeders, the growing Cannabis industry, and the general public. These results offer a significant contribution to our understanding of Cannabis genetics while serving to increase interest and research in this field.

Aspen King  
Biological Education, PhD  
Experimental Biology 2017  
Chicago, IL, USA  
First Author: Yes

## Aryl Hydrocarbon Receptor Activation Differentially Alters Cholera Toxin-Specific IgA Levels in Feces and Serum

Immunoglobulin A (IgA) is an antibody involved in maintaining the mucosal immune response, and is the most common antibody found in the intestinal lumen. In the gut mucosal epithelium, IgA plays an important role in protecting against pathogens and neutralizing toxins. Previous studies by this laboratory and others have shown that IgA levels are altered upon activation of the aryl hydrocarbon receptor (AhR). While other studies have demonstrated a decrease in antigen-specific IgM and IgG responses upon AhR activation, little is known about the effect of AhR activation on the IgA response. This presentation aims to provide a better understanding of how total and antigen-specific IgA responses are altered upon AhR activation. In this study, the prototypical AhR agonist 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) was used for receptor activation. Female C57Bl/6 mice were administered peanut oil (vehicle) or TCDD at 2.5, 10, and 40  $\mu\text{g}/\text{Kg}$  doses. On the following day, mice were orally immunized with whole Cholera toxin (CT, 10  $\mu\text{g}$ ). Two booster immunizations were given at 10-day intervals. Antibody levels were measured by ELISA of fecal extracts each week, and serum at termination (week 4). Data were statistically analyzed using an Analysis of Variance (ANOVA) and appropriate post-hoc tests. We found that total serum IgA levels were significantly decreased ( $P < 0.05$ ) in TCDD-treated animals, while total fecal IgA levels in these animals remained unchanged at any time point measured (weeks 1-4). A significant and dose-dependent decrease in CT-specific serum IgA, IgM and IgG1 was observed in TCDD-treated animals. In feces, CT-specific IgA levels were significantly decreased ( $P \leq 0.05$ ) in TCDD-treated mice at weeks 1 and 2, but not at any later time points (weeks 3 and 4). These results demonstrate that intestinal IgA responses recover from AhR-mediated suppression more rapidly than systemic responses. As it has been determined that the general population is exposed to AhR activators from dietary intake, endogenous compounds, and other environmental factors, understanding the effects that AhR activation have on immune regulation is crucial. The role of AhR activation in modulating the immune response has also been proposed as a target for therapeutic purposes, making this presentation's conclusions about alteration of IgA levels valuable.

Benjamin Kugler

Sport and Exercise Science: Exercise Physiology, MS

2017 Experimental Biology

Chicago, Illinois, USA

First Author: Yes

Effects of Dietary Creatine Monohydrate Supplementation and Resistance Training on Late Onset Doxorubicin-Induced Skeletal Muscle Dysfunction and MyoD Expression

This presentation is over my thesis on chemotherapy drug doxorubicin (DOX), creatine supplementation and resistance exercise to improve muscle function and MyoD protein expression. The chemotherapy drug DOX has been shown to cause skeletal muscle dysfunction and reductions in MyoD gene expression. Creatine monohydrate (Cr) supplementation and resistance training (RT), however, have been shown to increase MyoD expression and improve skeletal muscle function, but their effects on DOX myotoxicity have yet to be explored. The aim of this study was to determine the effects of DOX treatment, RT, Cr, and combined Cr and RT on late-onset DOX myotoxicity and MyoD expression. Male Sprague-Dawley rats randomly assigned to control diet+sedentary+saline (SS), control diet+sedentary+DOX (SD), control diet+RT+DOX (RD), Cr+sedentary+DOX (CrSD), and Cr+RT+DOX (CrRD) were fed either standard rodent chow or a diet supplemented with 3% Cr for 40 days, and on day 14, animals received daily 1 mg/kg DOX injections for 12 consecutive days (12 mg/kg cumulative) or saline (0.09% NaCl) as a placebo. After injections, CrRD and RD were housed in cages where food and water were gradually raised to act as a RT model. Forelimb grip strength was measured to analyze in vivo skeletal muscle function and was assessed at baseline and throughout the 40-day treatment period. Twenty-four hours after day 40, the right soleus (SOL) and extensor digitorum longus (EDL) were then excised and flash frozen for later analysis. MyoD expression was then analyzed using Western blotting. From baseline to day 40, the SS had an increase in grip strength (+20%,  $P < 0.05$ ), and this increase was not observed in SD, RD, or CrSD (+3%, +7%, and +2%, respectively,  $P > 0.05$ ); however, an increase in grip strength over the 40 day period similar to that of SS was observed in CrRD (+25%,  $P < 0.05$ ). In the SOL, no between-group differences in MyoD expression were observed ( $P = 0.093$ ), and when compared to SS, MyoD expression in the SOL was 37% lower in SD. No trends in the nutrition and exercise interventions modulating MyoD expression were observed (-51%, -36%, and -64% vs SS in RD, CrSD, CrRD, respectively). Similarly, no between-group differences in EDL MyoD expression were observed ( $P = 0.57$ ) with SD, RD, CrSD, and CrRD expressing 46%, 42%, 21%, and 27% lower MyoD, respectively, than SS. In conclusion, combined Cr and RT preserved grip strength following DOX treatment, but MyoD expression does not seem to be involved in this myoprotection. It is possible that myogenic regulatory factors other than MyoD may be involved in CR and RT-induced protection against DOX myotoxicity. The importance of this research demonstrates that CR and RT combined may be an effective therapeutic therapy for the improvement of muscle function in patients receiving DOX treatments.

Benjamin Whittier

Music: Instrumental Performance: Woodwinds, MM

2017 North American Saxophone Alliance Region 2 Conference

Las Cruces, New Mexico, United States of America

First Author: No

The Front Range Saxophone Quartet performs: "Prodigal Child" by John Fitz Rogers

This presentation is being given by the Front Range Saxophone Quartet (FRSQ). FRSQ was founded in 2013 as a University of Northern Colorado Chamber Ensemble and fulfills the chamber music requirement of instrumental performance degree programs. The group is coached by faculty member Dr. Andrew Dahlke.

The North American Saxophone Alliance is the major organization in the United States and Canada and presents conferences across the country that are attended by the best University students and professionals in saxophone. This region two conference features saxophonists in Colorado, New Mexico, Arizona, Utah, Nevada, California, and Hawaii.

Our quartet has been working towards this performance since the Fall semester. We will be performing a well respected and challenging work, "Prodigal Child." This performance will showcase the graduate school and the University of Northern Colorado.

Braeden Ayres

Music: Conducting, Choral, MM

2017 American Choral Director's Association National Conference

Minneapolis, Minnesota, United States of America

First Author: No

American Choral Directors Association App Committee and Collegiate Unity Choir

The American Choral Directors Association (ACDA), in keeping with its recently updated Mission Statement, is committed to developing and implementing state-of-the-art communication. In 2017, ACDA will implement an all-digital conference platform. As a member of the App Committee, I am part of a team that is designing and training ACDA members from across the Americas in the new conference application. We are creating an all-inclusive conference app that will contain information on every session, including presenters, content, location and directions, scheduling, and supplemental content. My involvement at the ACDA conference will be to guide thousands of conference attendees through this transition into a digital platform, as well as manning the information booth for the entire conference.

In addition, ACDA has selected a quartet of students from each state to sing in the Collegiate Unity Choir. I will represent the state of Colorado as its tenor. As a singer in the Collegiate Unity Choir, I will learn the repertoire in advance and participate in rehearsals during the conference, culminating in a performance that represents ACDA's diversity and goals for the future of our organization and country.

Brandy Lynch

Sport and Exercise Science: Sport Pedagogy, PhD

2017 Society of Health and Physical Educators America National Convention & Expo

Boston, Massachusetts, United States of America

First Author: Yes

Lacking Curricular Space? Supplementing Physical Education Teacher Education Curriculum with Professional Development Workshops

This research poster will be presented during a poster session entitled "Teaching and Learning I".

Many physical education teacher education (PETE) programs lack the time and space necessary to adequately provide teacher candidates (TCs) with essential experiences required to develop strong content knowledge in content they will be expected to teach in P-12 settings (Siedentop, 2002). Challenges related to TCs' perceived deficits in content knowledge have commonly been reported (Capel & Katene, 2000; Herold & Waring, 2009). In turn, a deficit in knowledge impacts TCs' perceived competence to teach required content (Sloan, 2007). One viable option, rather than restructuring the current curricula, is to supplement the existing curriculum with professional development (PD) workshops designed to facilitate opportunities for TCs to acquire content knowledge. Therefore, the purpose of this study was to examine TCs' experiences at a PD workshop, specifically addressing how participation influences self-competence and understanding of content (tennis), as perceived by TCs.

The mixed-methodology involved the collection and analysis of self-reported questionnaires (n=24) addressing participants' experiences and changes in content knowledge and understanding of tennis as a result of participation in a free, 3-hour "School Tennis Workshop" presented by the United States Tennis Association (USTA). The questionnaire included a series of retrospective pre/post 7-point Likert scale items addressing changes in TCs' perceived competence and willingness to teach tennis during future field experiences, if given the choice. In addition to questionnaires which were completed immediately following the completion of the workshop, 12 TCs participated in semi-structured, in-depth interviews.

Qualitative data were examined through a grounded theoretical perspective using two distinct yet overlapping processes of analysis: open and axial coding (Strauss & Corbin, 2008). Specifically, researchers developed categories of similar concepts and themes derived from the questionnaire data, then compared it to themes which emerged from the interviews. Quantitative data analysis included non-parametric t-tests to determine significant differences ( $\hat{1}\pm = .05$ ) between retrospective pre- and post-items addressing TCs' perceived self-competence and willingness to teach tennis.

Through qualitative data analysis, the following themes related to changes in TCs' content knowledge and understanding of tennis emerged: awareness of developmentally appropriate tennis equipment, approaches to teaching tennis to younger students, cues and progressions, safety and management techniques, and availability of additional teaching resources. All surveyed participants identified the workshop as a positive and meaningful experience which they would recommend to peers. Non-parametric t-tests revealed significant differences in perceived competence and willingness to teach tennis during future field experiences.

I acted as the principal investigator for this research study, while my advisor, Mark Smith provided guidance and feedback throughout the process.

Results of this study suggest PD workshops are a viable way to increase content knowledge in TCs without compromising existing curriculum programming. Additionally, PD workshops focused on specific content may have a positive influence on TCs' self-competence and understanding of workshop content. Overall, PD workshops were perceived as valuable and beneficial by TCs, and participation increased TCs' willingness to choose to teach tennis during future field experiences.

Brent Hancock  
Educational Mathematics, PhD  
2017 Conference on Research in Undergraduate Mathematics Education  
San Diego, CA, USA  
First Author: Yes  
Undergraduates' Reasoning about Integration of Complex Functions within Three Worlds of Mathematics

Recent research illustrates the importance of studying students' nuanced mathematical argumentation, as well as students' tendency to invoke attributes of real numbers that no longer apply to situations in complex analysis (Danenhower, 2000; Troup, 2015; Wawro, 2015). This preliminary report explicates a study exploring undergraduate student pairs' reasoning about integration of complex functions. I am particularly interested in students' attention to the idiosyncratic hypotheses of powerful integration theorems as they evaluate integrals. Here reasoning is treated as contributing to collective argumentation (Krummheuer, 2007) within one or more of Tall's (2013) three worlds of mathematics, namely: the embodied, symbolic, and formal. Data were collected via task-based, semistructured interviews with pairs of undergraduates to elicit such reasoning, and classroom observations of the six Complex Analysis sessions devoted to integration prior to the interviews. All interviews have been transcribed and current analysis consists of conducting a Toulmin (2003) analysis, augmented by a three-world classification. In this preliminary report, I discuss the details of this analysis and present some initial findings.

Recently, Soto-Johnson, Hancock, and Oehrtman (2016) found that mathematicians drew upon a wealth of personal embodied experiences when discussing their conceptions of continuity of complex functions. Although their study pertained to the population of mathematicians, Soto-Johnson et al. hypothesized that meaningfully connecting experientially-based intuition and formal mathematics could also benefit students' reasoning in courses such as complex variables. In part, my research serves to reveal how undergraduates reconcile their prior math experiences with the formal idiosyncrasies present in integration theorems. Hence, my hope is that my inquiry into students' reasoning about integration might illuminate ways in which instructors can cultivate healthy connections between students' embodied intuition and rigorous, formal mathematics.

Additionally, my preliminary findings suggest that my study will complement and extend the mathematics education literature regarding students' mathematical argumentation. Wawro (2015) found that her participant's argumentative successes were primarily due to the fact that he was "flexible in his use of symbolic representations, proficient in navigating the various interpretations of matrix equations, and explicit in referencing concept definitions within his justifications" (p. 336). Accordingly, this suggests a potentially strong connection between representational fluency and effective mathematical argumentation. The results of my study serve to corroborate this finding by detailing how students' embodiment, symbolism, and formalism collectively inform their argumentation about integration. Moreover, my initial results underscore the importance of using all six components of the Toulmin (2003) model when investigating mathematical argumentation, as other researchers have suggested (Alcock & Weber, 2005; Inglis, Mejia-Ramos, & Simpson, 2007; Simpson, 2015). In particular, preliminary results suggest that one pair of participants utilized modal qualifiers to progress an argument forward by indicating various degrees of certainty; this tended to catalyze new sub-arguments wherein additional warrants or backing were provided. Additionally, my results indicate that challenges to individuals' claims within a collective argument should somehow be accounted for in the Toulmin scheme, given their importance to the process of argumentation.

Brett Andrews

Music: Performance: Strings, DA

2017 Music Teachers National Association National Conference

Baltimore, Maryland, USA

First Author: No

Music Teachers National Association Chamber Music Competition Finals

The Music Teachers National Association Chamber Music Competition is held every year and consists of three levels: State, Region, and the National Finals. Our string quartet, consisting of myself and three undergraduate students, competed and won first prize at both the State and Region levels. This allowed us to advance and represent University of Northern Colorado at the National Finals held at the national convention in Baltimore, Maryland. Preparations began in the month of August, consisting of two rehearsals and a one-hour coaching with faculty each week. During this preparation, we improved many aspects of playing as a group, including tone, communication, intonation, and presence. The repertoire we prepared for the competition follows: Beethoven String Quartet in e minor (op. 59, No. 2), Shostakovich Quartet No. 7 in f-sharp minor (Op. 108), and Piazzolla Four for Tango. The variety found among these pieces allowed our ensemble to improve on music from three eras, three nationalities, and three tonal languages. Our in-depth review and analyses of the program certainly contributed to our success in the competition. We now look forward to competing at the National level and hope for the best.

Brittany Jacobs

Sport and Exercise Science: Sport Administration , PhD

2017 Commission on Sport Management Accreditation Conference

Tampa, FL, USA

First Author: Yes

Sport Management Doctoral Granting Institutions: Curriculum, Focus, and Placement

The examination of doctoral programs in Sport Management is important for both the perspective doctoral student and the academic field. This academic discipline has seen a 287% growth in number of programs from 2003 to 2015. As this growth continues the need for quality professors in the field must become a primary emphasis point. To meet this demand, the number of institutions granting doctoral Sport management degrees has grown to 47 worldwide (with 35 of these programs located in the United States). Themes were derived from a pilot study and have been utilized to guide the direction of the current study, Thus, the purpose of this study is to: (1) provide an overview of Sport Management doctoral programs, (2) analyze the alignment of doctoral programs with programmatic goals and operational indicators, and (3) Cross-reference doctoral program focus with alumni job placement. Surveys were sent to all 47 sport management doctoral granting institutions. Data will be analyzed and final results will be presented. This aligns with the conference sub-theme of Student Engagement & Teacher preparation, as it considers how future professors are educated.

Chang Su  
Music: Jazz Studies, DA  
2017 Jazz Education Network Conference  
New Orleans, Louisiana, USA  
First Author: Yes  
Jazz Education Network Young Composer Showcase Award

My jazz big band composition "Forbidden City Garden" won the Jazz Education Network Young Composer Showcase Award, and it was selected to be performed at the 2017 conference in New Orleans. As one of the selectees, I was invited to attend the conference to give a presentation about my composition "Forbidden City Garden." The goal of this presentation was to share the compositional techniques that applied to this piece, and hopefully to inspire other young composers.

In addition, the Young Composer Showcase Mentorship program provided each selectee an opportunity to have an one-hour study session with the greatest jazz composers and arrangers. I had a great conversation with jazz composer and arranger Alan Baylock. Mr. Baylock was very interested in my doctoral dissertation topic, which is an analytical study of great jazz composer Thad Jones's compositional styles. Mr. Baylock shared his expertise to me, and he gave me invaluable suggestions.

I also had chances to meet other award winning composers during the Young Composer Showcase Committee Meeting. The meeting was a panel discussion of what composers can do to help the jazz composition community. The committee contributed numerous refreshing ideas that would definitely provide a much better education environment for the jazz composition students.

In conclusion, my experience attending the Jazz Education Network conference has helped my career as a jazz composer tremendously. Meeting and talking with the best professionals in the field has significantly opened my mind. It is definitely a great investment for me.

Cherjanet Lenzy

Higher Education & Student Affairs Leadership, PhD

NASPA (National Association of Student Personnel Administrators) Student Affairs Administrators in Higher Education 2017 Annual Conference, San Antonio

San Antonio, TX, USA

First Author: Yes

The Experiences of College-Aged Black Women Engaged in Race-Based Activism

The purpose of this interpretivist phenomenological study was to explore whether and how racialized sexism contributes to the experiences of college-aged Black Women's engagement in race-based activism. Through exploration of current Black Women's engagement in race-based activism the study uncovered that many race-based activist spaces solely focus on race and do not account for intersectionality. Black women experience racism coupled with other identities that compound their experience, and the complexity of blackness is not completely acknowledged or recognized in race-based activism. These findings indicate areas of growth in race-based activist spaces and detail new understanding to the lived experiences of Black Women.

Current published studies have not explored Black Women's issues that connect to their intersectional identities and are not situated in either race-based or gender-based activist platforms. Though there have been studies exploring Black Women or women of color and activism (Linder & Rodriguez, 2012; Harvell, 2010; Rainey & Johnson, 2009) and studies that discuss how Black Women were involved in activism during the Civil Rights Movement (Semien, 2003; Milner, 1996; Edwards, 2000; Barnett, 1993; Horsford, 2012;), no studies specifically look at why activist platforms seem to minimize how Black Women are impacted by racism and sexism and how that impact is not centered in activist work. There is however, new literature that has begun to address this phenomenon (Lindsey, 2015), though accompanying research has yet to appear.

Despite their many contributions, Black Women and their interests remain at the margins of race-based activist movements. Due to the intersecting identities of race and gender Black Women combat both racism and sexism. The multiple oppressive experiences endured by Black Women are often left out of activist platforms and general understanding. Additionally, the discussion of sexism centers around the experience of White women, while racism is centered on the Black male experience (Purdie-Vaughn and Eibach 2008; Schug, Alt and Klaver, 2015; Sesko and Biernat, 2010; Thomas, Dovidio and West 2014). Thus, the current study aimed to explore college-aged Black Women's engagement in race-based activism.

#### Methodology

Self-identified college-aged, Black Women were selected for this study via purposive sampling.

Participants shared their experiences with intersectionality in race-based activist spaces through semi-structured interviews. Before the interview participants were asked to consider their intersecting identities (Carbado, Crenshaw, Mays & Tomlinson, 2013; Crenshaw, 1991) as Black Women and bring with them a list of the most pressing issues they felt Black Women faced today and that they would be engaged in activism around if possible.

#### Implications

Understanding how the interlocking systems of oppression impact Black Women provides an overarching view of how persons with multiple identities experience oppression differently (Bell, 2016; Crenshaw, 1991). Thus, future research should examine how Black Women navigate their intersectional identity in feminist activism. For instance, identifying how Black Women navigate racism and sexism in feminist activism would further illuminate how single-issue platforms neglect the voices of many. Lastly, social justice educators should assist those with multiple identities navigate single-issue activist spaces to advocate for issues that impact them on numerous levels.

Chin-Wen Lee

Special Education, PhD

Policy Advocacy: Gifted Students from Culturally and Linguistically Diverse Backgrounds

I. The Proposed Topic Gifted students are “a national resource, an investment in the future of the United States” (Johnsen, 2013, p. 98). After the conceptions of giftedness evolved from innate abilities to potentials to be developed (Kaufman & Sternberg, 2008), gifted students from culturally and linguistically diverse backgrounds should have more opportunities to grow and achieve their potentials than before. Unfortunately, literature repeatedly indicates that the disproportionality in gifted education continues, for example the underrepresentation of African American students in gifted education (Ford & King Jr., 2014). According to the Projections of Education Statistics to 2024 (U.S. Department of Education, 2016), the public school enrollments are to be higher in 2024 than in 2012 for Hispanics, Asians/Pacific Islanders, and students of two or more races. The enrollments of White, American Indians/Alaska Natives, and African Americans are projected to decrease. To prepare for that change, educators should take powerful initiatives to advance current practices in addition to culturally responsive education, and advocating policy changes should be one of the initiatives. The presentation focuses on adopting an inclusive definition of giftedness to identify students from culturally and linguistically diverse backgrounds in state regulations in order to improve practices, such as identification. This presentation will demonstrate the results of analyzing definitions of giftedness in state regulations across the United States.

II. Opportunities for Audience Participation Relevance to DDEL The information presented in this session will focus on the analysis of giftedness definitions, especially the recognition of learners from culturally and linguistically diverse backgrounds. Related information includes the status of mandates of gifted education and identification requirements. The presenter will facilitate brainstorming to engage audience to develop action steps for policy advocacy. Flip charts will be used on-site so that ideas can be shared. III. Implications of the Topic for Special Education This presentation advocates policy changes. It will raise educators’ awareness of gifted students from culturally and linguistically diverse backgrounds. The presentation also will help educators reflect on existing identification practices that influence students’ access to gifted education. Intended Learner Outcomes: Session participants will (a) Learn about the inclusion of learners from culturally and linguistically diverse backgrounds in definitions of giftedness in state regulations; (b) Learn about the status of mandates of gifted education and identification requirements; and (c) Develop action steps for policy advocacy.

Christopher Tombari  
Higher Education & Student Affairs Leadership, PhD  
2017 National Association of Student Personnel Administrators (NASPA) Annual Conference  
San Antonio, Texas, USA  
First Author: Yes  
Title IX Administrators: Interpreting a Rapidly Expanding Profession

Our study investigates how Title IX administrators experience and view their emerging profession. We used case study methodology, bounding our case within a multi-campus public university system located in the Rocky Mountain West. We organized our data using Abbott's (1988) System of Professions (SOP) and Clark's (1972) theory of saga, storytelling, and narrative to extract our findings from case study interviews.

We conducted eight semi-structured interviews and document analysis to collect data from Title IX administrators within a multi-campus public university system in the Rocky Mountain Region. Semi-structured interviews offer a flexibility that allows for a broader collection of data and provides opportunities to clarify points, a style which lends itself to the interpretivist epistemology of this research (Jones, Torres, & Arminio, 2013).

To understand our data, we coded transcripts with a predetermined set of codes developed from our theoretical framework. We coded with DeDoose's®, using the software to aggregate excerpts corresponding to each sub-theme. We then analyzed the sets of excerpts for patterns, themes, frequency, and relationships that related back to our research question. Next, we incorporated a data reduction process where we summarized each set of excerpts into common themes and generalizations, finding broad statements that made meaning out of the data (Hatch, 2002).

Our analysis of the data framed through SOP and saga theory, indicates our participants believe they are part of a new and emerging profession. Participants clearly identified a professional vacuum into which they seek to control knowledge in the belief they possess unique expertise; ultimately, this expertise is a means to power and recognition. Their narratives also described shifts in society that precipitated the creation of their positions. Finally, their narratives demonstrate an emerging saga around professional belonging, specific responsibilities, the pressure of decision-making, and stories of making a difference for others.

If SOP theory is accurate, we would anticipate a maturing of the profession in the next few years, altering the landscape for new, mid-level, and senior student affairs practitioners. For new professionals interested in the field, the advancement of the profession could also spur the creation of new, related degree programs within higher education. We anticipate new certificates or specializations within law programs or higher education student affairs programs for professionals wanting to work within Title IX administration. Up and coming administrators may have distinct and specialized Title IX training. A looming question regarding Title IX administrators as an emerging profession is sustainability given already limited resources in higher education funding and the current presidential administration. In spite of the question of sustainability, the amount of media attention garnered by stories of sexual violence, sexual harassment, and hostile work environments in higher education indicates to us that Title IX administrators will remain permanent in the institutional hierarchy. Our research is the first step in exploring the emerging profession of Title IX administrators.

I was an equal participant in all phases of the research and the writing that went into the composition of this manuscript, which we are presenting at NASPA.

Courtney Long

Music: Performance: Woodwinds, DA

2017 North American Saxophone Alliance Region 2 Conference

Las Cruces, New Mexico, United States of America

First Author: No

The Front Range Saxophone Quartet Performs: "The Prodigal Child" by John Fitz Rogers

This presentation is being given by the Front Range Saxophone Quartet (FRSQ). FRSQ was founded in 2013 as a University of Northern Colorado Chamber Ensemble and fulfills the chamber music requirement of instrumental performance degree programs. The group is coached by faculty member Dr. Andrew Dahlke.

The North American Saxophone Alliance is a major organization in the United States and Canada and presents conferences across the country that are attended by the best University students and professionals in saxophone. This region two conference features saxophonists in Colorado, New Mexico, Arizona, Utah, Nevada, California, and Hawaii.

Our quartet has been working towards this performance since the Fall semester. We will be performing a well-respected and challenging work, "Prodigal Child." This performance will showcase the graduate school and the University of Northern Colorado.

Curtis Hill

Educational Psychology, PhD

87th Annual Convention of the Rocky Mountain Psychological Association

Salt Lake City, Utah, United States of America

First Author: Yes

Obesity-Specific Optimism Bias and Thin Idealization Predict Obesity Stereotypes

Over the past 25 years, the prevalence of obesity has increased substantially. This increase has raised concerns because obesity has a number of detrimental physical correlates, and has been linked to negative psychological characteristics (e.g., poor body image) and social difficulties. Furthermore, obesity carries a heavy social stigma that has been linked to negative perceptions of obese people. It is therefore important to determine variables that predict obesity stereotypes.

We considered two possible predictors: The first being “thin idealization” – a belief system wherein social and economic success is tied to extreme thinness in women and “thin-muscularity” in men. Second we considered “obesity optimism bias” as a predictor as well. Optimism bias is the phenomena wherein people believe, that positive events are more likely, and negative events are less likely, for the self than for others. We defined obesity optimism bias as: judgments that obesity-related events generally perceived as negative (e.g., marrying an obese person) are less likely for the self than for others.

#### Method

Participants were 128 (80 female) undergraduates recruited from introductory psychology classes. Participants completed: (a) attribute checklists for obese and average-weight people, (b) the SATAQ, and (c) measures of general optimism bias, and obesity optimism bias.

#### Results

An ANOVA was conducted to determine whether obesity stereotypes were stronger for males than for females. This analysis yielded a marginally significant effect,  $F(1, 126) = 3.51, p = .06, \eta^2 = .03$ , such that men had more negative stereotypes than women.

Examination of the correlations among measures indicated the following: Women had lower obesity optimism bias scores than men ( $r = -.19, p = .035$ ) and, had marginally weaker obesity stereotypes than men ( $r = -.17, p = .06$ ). Further, Thin idealization was related marginally to obesity optimism ( $r = .17, p = .06$ ) and, significantly to obesity biases ( $r = .22, p = .02$ ). Consistent with expectations was the positive correlation between obesity optimism bias and obesity stereotype biases ( $r = .21, p = .02$ ).

Next, a regression analysis was conducted finding that obesity optimism bias, and thin idealization made significant independent contributions to the prediction of obesity stereotype biases. This analysis indicated that the predictors accounted for 12.4% of the variance in stereotype biases,  $F(5, 116) = 3.16, p = .011$ . However, of the total predicted variance, thin idealization and obesity optimism biases accounted for 12.1%. Further, thin idealization ( $\hat{\eta}^2 = .29, p = .001$ ) and obesity optimism bias ( $\hat{\eta}^2 = .20, p = .03$ ) were significant independent predictors after variance associated with the other variables in the equation was controlled.

#### Discussion

The finding that, even after controlling for general optimism bias, obesity optimism bias predicted

unique variance in stereotype biases suggests that future researchers consider the possibilities (a) that optimism bias is both a domain-general and a domain-specific construct and (b) that domain-specific optimism bias is a better predictor of anti-obesity biases than domain general optimism bias.

Dayna DeHerrera  
Public Health/Community Health Education, MPH  
Xavier University of Louisiana College of Pharmacy 10th Anniversary Health Disparities Conference  
New Orleans, LA, USA  
First Author: Yes  
Modified Social Ecological Model: Engaging People Who Inject Drugs

The Xavier University of Louisiana College of Pharmacy 10th Anniversary Health Disparities Conference brings together a gamut of public health professionals that are working towards creating interdisciplinary partnerships and collaborations to build healthier communities by reducing health inequity and disparities. This presentation describes a modification of the social-ecological model (SEM) that will be used to engage people who inject drugs (PWID). While macro-level initiatives are widely acknowledged, and supported, public health and current research tends to focus on the individual factors that are associated with complex behaviors such as injection drug use (IDU) rather than the environmental and social contexts of IDU. This reduces the potential for improving harm reduction techniques and engaging PWID. The individualistic approach guides research and prevention programs to focus on changing the individual's behavior while teaching them to cope with the external environment rather than directing efforts towards changing the environment itself. IDU does not solely impact the individual user, but also the surrounding environment and community. The traditional SEM structure fails to appropriately engage vulnerable populations such as PWID which can have negative implications on health. This presentation proposes a modified SEM (M-SEM) which shifts the view of IDU and PWID towards an organizational responsibility for facilitation of engagement through harm reduction efforts. The resources and expertise held by organizations provides an opportunity to bridge the gap between PWID and their environment. The M-SEM allows for organizational influence at each level of the model, encouraging education and dialogue that leads to an environment that supports sobriety and safe injection practices. This presentation and M-SEM posits that IDU behavior change must include the organizational level to build an environment that supports individual effort. This approach can improve health outcomes and decrease health disparities among PWID. As the opioid epidemic is overtaking the United States, IDU is also trending upwards. This pattern indicates a need for strategies geared towards engaging the vulnerable population of PWID. The multi-faceted complexities of drug addiction require that the environment in which the individual lives must be supportive of their efforts towards sobriety or safe injection practices. Harm reduction through organizational efforts provide this support while reducing the risk of blood-borne infectious diseases (such as HIV/AIDS and Hepatitis C), overdose, and death. The M-SEM is structured to allow the organizational level to become a catalyst to engage other levels of the SEM and work towards designing, implementing and improving harm reduction strategies.

Emilie Hancock  
Educational Mathematics, PhD  
20th Annual Conference on Research on Undergraduate Mathematics Education (RUME)  
San Diego, CA, USA  
First Author: Yes  
Characterizing Normative Metacognitive Activity During Problem Solving in Undergraduate Classroom Communities

This methodological poster will present analysis methods and results from my dissertation pilot study, with focus on an evaluation of the use of such methodological tools. Additionally, the pilot study has informed data collection and analysis for my dissertation study. Modifications and preliminary results of this current investigation will also be shared.

Many mathematics teachers and researchers have recognized a need to foster conceptual understanding and skills beyond sole accumulation of facts or rote procedures (e.g., Skemp, 1987). There has been increased focus on developing problem-solving skills, and problem-solving frameworks identify metacognition, or “thinking about thinking”, as a core component of the problem-solving process (e.g., Carlson & Bloom, 2005; Schoenfeld, 1985). While metacognition has been identified as an essential 21st Century skill (Binkley et al., 2012) it remains undertheorized and under-studied in its application to classroom communities (Carroll, 2008), especially at the undergraduate level (Dumford, Cogswell, & Miller, 2016). In fact, Carroll (2008) claimed that students have “on the whole, not benefited from at least 20 years of metacognitive research” (p. 411). Much of the mathematical problem-solving research has not described the explicit role metacognition plays during the problem-solving process (Carlson & Bloom, 2005). A shift of focus to a process view of “real-time” metacognition during problem solving necessitates an exploration of metacognition “in the context of natural purposeful activity” (Neisser, 1976, p. 7). There is limited research documenting how metacognition manifests itself during the problem-solving process in a classroom environment, and such investigation could help to develop explicit ways to foster metacognition as normative behavior within the mathematics classroom. As such, my study aimed to address the following research question: How do metacognitive norms during problem solving develop in an undergraduate mathematics community of practice?

This study adopted Vygotsky’s (1978, 1986) social constructivism as the theoretical framing, emphasizing semiotic mediation and the sociohistorical embeddedness of individual cognition. Activity Theory (Engeström, 1987; Leont’ev, 1979) was chosen as an analytic framework as it provides concrete language to investigate complex interactions between individuals and the community while attending to broader social factors. To test the feasibility of utilizing activity theory, I conducted a case study in an undergraduate number theory course. Data included audio- and video-recorded class sessions, as well as two interviews each with the instructor and four students. Jaworski and Potari (2009) suggest two levels of analysis to account for sociocultural complexity: a micro-analysis of language-mediated discourse, followed by macro-analysis using the activity triangle to highlight tensions within the activity system. Macro-analysis utilized the Qualitative Hypothesis-Generating process (Auerbach & Silverstein, 2003) by identifying relevant texts and categorizing repeated ideas into themes.

Methodological analysis of the pilot study resulted in changes for the dissertation study. First, data collection for the dissertation study was conducted for the entire semester and included more data sources. Second, the population was changed to a mathematics course where problem solving was an explicit component. This included the addition of Problem Solving Sessions (PSS’s) throughout the course with written reflections on judgement and decision making processes.

Emily Moulton

Educational Psychology, PhD

2017 Rocky Mountain Psychological Association annual convention

Salt Lake City, UT, USA

First Author: Yes

Values Affirmation and Mitigating the Negative Effect of Stereotype Threat on Performance for Students in a Psychological Statistics Course

People often assume differences between groups in certain skills or abilities. These groups can be based on gender, race/ethnicity, or other factors. The perceived differences may or may not be accurate, and often are perpetuated by stereotypes. Perceptions can affect interactions between members of different groups, as well as certain group members' own self-perceptions. This can result in reduced performance by the stereotyped group members, a mechanism referred to as "stereotype threat."

Several recent studies have used a technique called "values-affirmation" to mitigate the effect of stereotype threat against specific groups. In these studies, members of the stigmatized group complete a brief writing exercise in which they affirm values or characteristics that are important to them. Data about their performance on some measure(s) of the stigmatized area is then collected. The exercise has demonstrated effectiveness in reducing the achievement gap for several stigmatized groups. For example, a values-affirmation exercise reduced the performance gap between male and female students in a college physics class.

In the current line of research, we tested the potential mitigating effect of a values-affirmation exercise with female undergraduate students taking a psychological statistics course. We were interested as to whether this intervention can be effective in reducing the achievement gap between males and females on math tasks in a college-level statistics course for students majoring in psychology.

Participants completed the values affirmation task, as described above, in Dr. Kole's PSY 200 class during the first two weeks of the fall 2016 semester. Half of the participants were randomly assigned to the control condition (asked to write about two or three least important values) and half were assigned to the treatment condition (asked to write about two or three most important values). Exam performance was collected throughout the semester, along with the final course grade.

Data has been collected but statistical analyses have not yet been completed. As a research assistant, I will be conducting the descriptive analyses soon, in order to determine if there is a statistically significant difference between the values affirmation and control groups. We predict that those in the values affirmation condition performed better on the exams, and thus in the course as a whole. We are interested in comparing the performance of male and female students in the class, to test our hypothesis that the values-affirmation intervention will help mitigate the stereotype threat effect against women completing math-related tasks. We are hoping that this exercise can be confirmed as useful and be expanded as an easy, efficient intervention for mitigating stereotype threat for female students taking psychological statistics.

Emily Ownby  
Accounting, MACC  
2017 Annual BAP Regionals  
Denver, CO, USA  
First Author: No  
BAP Chapter Development

Our presentation is about strategic planning and will discuss the following topics: How Our Chapter Developed Its Objectives for the 2016-2017 Academic Year: An important part of leadership comes from developing a vision for how the chapter seeks to build on its past and prepare for its future. Using 2015-2016 as the base year, how were current year [2016-2017] objectives developed? Moreover, what current-year actions [“inputs”] contributed to accomplishing these objectives. Further, what results [“outputs”] are expected to provide feedback [or have provided feedback] regarding the impact on your chapter. Measurability of results [“outputs”] enhances your assessment of what did or did not work. Examples of measurability could include changes in chapter membership demographics over time, changes in membership size over time, interactions among competitor student groups in addition to countless others.

Ethan Adams  
Sociology: Applied, MA  
2017 Pacific Sociology Association Conference  
Portland, Oregon, USA  
First Author: Yes  
Addressing Poverty with Social Capital

The presentation covers research in progress on a sample of community based organizations serving the homeless population. The purpose of the study is to examine the methods, challenges, and impact of programs that build networks and relationships in order to increase access to available support services. Supporting literature on social capital, by Pierre Bourdieu and Robert Putnam, are used as the theoretical framework of the study. This theory is then reinforced with a variety of studies on the value of social networks and utilization of resources for people experiencing homelessness. This research addresses a gap within the current body of literature regarding the use of organizational practices that build social capital within their community. A qualitative method of inquiry is used to analyze interviews and documentation provided by the organizations for themes associated with the supporting literature. I am the sole researcher and presenter of this study. The results of this study will contribute to social capital theory and inform organizational policy on the implementation of support services that address poverty and homelessness at a community level.

Helen West

Music: Education, MM

2017 Colorado Music Educators Association Clinic/Conference

Colorado Springs, CO, USA

First Author: No

Musical Efficacy Beliefs and Feelings of Perceived Fraudulence Among Collegiate Musicians

This exploratory study examined the music performance efficacy beliefs and feelings of perceived fraudulence among high-achieving collegiate instrumental and vocal musicians. According to Bandura (1997), self-efficacy refers to the belief in one's ability to successfully execute a specific task given the skills one believes he or she possesses. Music performance efficacy centers on musicians' confidence in their ability to perform discrete musical tasks in a given context. Conversely, perceived fraudulence reflects a distinct doubt in one's abilities, and those experiencing perceived fraudulence believe that others wholly over-estimate their skills (Clance, 1985; Thompson, Davis, & Davidson, 1998). Although several researchers have investigated music performance efficacy beliefs (e.g., Hendricks, 2009; Martin, 2012; McCormick & McPherson, 2003; McPherson & McCormick, 2006), there is no known research on feelings of perceived fraudulence among musicians. The primary research questions for this study were:

1. What characterizes the music performance efficacy beliefs among high-achieving collegiate musicians?
2. To what extent are feelings of perceived fraudulence present among high-achieving collegiate musicians?
3. Is there a relationship between feelings of perceived fraudulence and music performance efficacy beliefs among high-achieving collegiate musicians?

In the spring of 2016, a total of 72 participants from a large, midwestern institution completed a 36-item online questionnaire. Items on perceived fraudulence were drawn from the Clance Impostor Phenomenon Scale, adapted to fit a music-specific context. Efficacy beliefs were measured using a researcher-developed scale designed to gauge both general and comparative confidence. Reliability coefficients for the perceived fraudulence scale ( $\hat{\alpha}=.90$ ) and the musical efficacy beliefs scale ( $\hat{\alpha}=.81$ ) were strong. Descriptive analyses were conducted on all dependent and independent variables. Composite efficacy belief scores suggested that participants exhibited moderate confidence about their musical abilities. Mean scores for perceived fraudulence items suggested that participants largely credited their success to hard work. However, participants still exhibited moderate feelings of doubt about their overall abilities as musicians. Implications for musical self-concept development at the collegiate level will be discussed.

Hillary Franks

Sport and Exercise Science: Sport Pedagogy, PhD

Society of Health and Physical Educators National Convention & Expo

Boston, MA, USA

First Author: Yes

Cooperating Teachers' Perceptions of Preparedness for the Student Teaching Experience

#### Background/Purpose:

The culmination of teacher preparation (TP) is the student teaching experience, which is one of the most anticipated and crucial opportunities in a TP program (Clarke, Triggs, Nielsen, 2012). Student teachers (ST) consider cooperating teachers (CT) to be one of the most important providers to their program (Rodgers & Keil, 2007). CTs have consented "to assume one of the most responsible, influential, and exciting roles in teacher education" (Henry and Weber, 2010, p. 2); therefore it is imperative for TP programs to prepare them for this role. CTs lack specific preparation to enable support for STs (Clarke, Triggs, Nielsen, 2014). The purpose of this study was to identify physical education (PE) CT's perceptions of preparedness for the student teaching mentorship role.

#### Method:

This mixed methods study involved the collection of survey data from 26 PE CTs (54% female, 46% male; 77% veteran CT; M=26 years teaching experience), which included demographic items and items related to their experiences as a CT, and semi-structured interviews from four CTs (3 female, 1 male) related to experiences and preparedness for the role of the CT.

#### Analysis/Results:

Quantitative data analysis included descriptive statistics of participant demographics and the perceptions of preparedness and experiences as a CT. Interviews and open-ended survey questions were examined through a phenomenological perspective that involved the development of categories of concepts and themes derived from the data and conceptualization and category definition (Corbin & Strauss, 2008). Specifically, researchers looked for trends within and across CT perceptions and perspectives.

Survey results revealed inconsistent perceptions of their roles as CTs, ranging from mentoring through modeling, observation, and feedback to a very hands-off approach. Despite not having any required formal training, 85% of CTs felt overall prepared. Of those that did not feel prepared, 75% were first-time CTs and had 10.5 years of teaching experience, on average. Qualitative data revealed themes surrounding knowledge of expectations of their role as CT and knowledge of student teacher (personally, teaching background). CTs suggested improvements included overall better communication with university supervisors and faculty and collaborating with other CTs. Finally, CTs gained new ideas from their STs and felt that being a CT was important to the profession.

#### Conclusions:

Findings suggest that despite feeling prepared overall, CTs could benefit from formal training to clarify their roles and responsibilities, improve communication, and become effective members of the student teaching triad.

I was the lead researcher for this study and will also be the lead and only presenter at the convention as my co-researcher is unable to attend the conference.

Jacob Augustin

Sport and Exercise Science: Sport Administration , PhD

2017 College Sport Research Institute Conference

Columbia, South Carolina, USA

First Author: No

Salary discrepancies between basketball programs: An investigation of the NCAA Power Five conferences

Wage disparities between males and females have been well-documented and publicized throughout history, resulting in continued and increased criticisms of gender-based societal constructs. Although recognition of the earnings gap between men's and women's head coaches at the collegiate level is far from novel, little research has focused on the sport of college basketball to determine what variables have the greatest influence on these discrepancies. Some suggest that the differences can be attributed to the masculine culture of sport organizations, where women receive less pay for their work and are not provided equal returns for human capital investments (Acosta & Carpenter, 2006). Others rationalize that women are underrepresented in leadership and coaching roles and underpaid in intercollegiate athletics because of overt institutional discrimination associated with access and treatment (Cunningham & Sagas, 2008). Given that the National Collegiate Athletic Association (NCAA) head coaching labor market is homogeneous, meaning that men and women are hired to perform comparable work, gender discrimination will be discernible when revenue and productivity are assessed (Brook & Foster, 2010). Therefore, the purpose of this study is to examine which, and to what extent, a variety of economic and performance variables impact the salaries paid to both male and female head basketball coaches at the Division I level. This study will seek to determine which variables are statistically significant drivers of compensation and whether they differ between male and female coaches. Given the unequal rise of coaches' salaries in recent years, this topic warrants further analysis.

To determine whether compensation differences among male and female basketball coaches are justified, a variety of revenue and program specific variables were analyzed. The data for this study was compiled from two sources; coaching prestige variables were obtained from the websites of each athletic department while athletic department revenues were obtained directly from the institutions' financial reports. Using three separate multiple linear regression models (one that included both genders and two that were gender specific), 15 revenue and three coach-specific variables were utilized to identify which variables significantly influenced the salaries paid to head coaches. The multiple linear regression models produced results that would suggest coaches of men's and women's basketball programs should be compensated based on their revenue producing potential. When assessing all coaches, with gender as an indicator variable, gender was not found to have a statistically significant effect on compensation. Rather, ticket sales and NCAA distributions were found to be the greatest influences. Ultimately, the results of this study indicate that Division I basketball programs pay their coaches according to their revenue producing potential, not their gender. Given that ticket sales had the greatest statistical impact on compensation in all three analyses, the stark salary disparities between programs appears to be justified.

Jeffrey King

Educational Mathematics, PhD

Twentieth Annual Conference on Research in Undergraduate Mathematics Education

San Diego, California, United States of America

First Author: Yes

Students' Social Adaptation to Mathematical Tasks

In this study, an advanced undergraduate geometry class taught in an inquiry-based learning setting was observed for social and socio-mathematical norms. Three pairs of students engaged in three task-based, semi-structured interviews: paired, individually, then paired again, solving the Seven Bridges of Königsberg and related tasks. A fourth stimulated-recall interview was performed using episodes from the last paired interview. Classroom observations and interview discourses were open coded for themes, structure, and function to analyze the norms developed within the classroom and by each pair as shaped by their social interactions. Tentative findings include: 1) norms of consensus, autonomy, and argumentation produced within the classroom, 2) varying metaphors across interview contexts, and 3) reliance on empirical strategies rather than structural reasoning. In this preliminary report, evidence from collected data is shared and a brief discussion how these results could help inform inquiry-based learning teaching methods is included.

Jennifer Geiman  
Counseling Psychology, PhD  
2017 Rocky Mountain Psychological Association Convention  
Salt Lake City, UT, USA  
First Author: Yes

That's Not My Name: an Exploration of the Lived Experiences of Gender Minority Service Members

This qualitative study will be presented in a poster at the 2017 Rocky Mountain Psychological Association Convention and focuses on gathering stories of the lived experiences of gender minority service members in the United States (US) military. The lifting of the ban on gender minority service members (i.e., transgender, bi-gender, or otherwise gender non-conforming) brings to light a need for further research. Such research must highlight the status of mental health and safety, as well as perceptions of social acceptance and support within this population (Gray, 2015). Current research points to the overrepresentation of suicidal ideation among both military and transgender populations, as well as the historical stigma associated with transgender identities in US culture (Blosnich et al., 2013; Huffaker & Kwon, 2016; Matarazzo et al., 2014). In 2015, for the first time gender minority service members were allowed to be open about their gender identities without fear of legal, professional, and financial punishment (Department of Defense, 2015).

The purpose of this phenomenological research study is to illuminate the experiences of active duty gender minority service members in order to give voice to this historically silenced group and to better inform decision-making bodies of the needs associated with such experiences. In this study, we sought to explore the idea that it is vital for cisgender (in which one's identified gender matches the sex they were assigned at birth) service members to be given training related to their gender minority counterparts in order to help them to feel safer and more supported at their command. (Kark, Karazi-Presler, & Tubi, 2016).

The themes compiled from completed a prior preliminary analysis of interviews from three gender minority service members include (a) the importance of being able to live authentically (with subthemes relating to difficulties with uniforms and grooming standards, the necessity to live dual lives, and unique threats that they face), (b) the importance of supportive people and environments, and (c) a desire for increased education and resources. With this last theme, participants most passionately wanted training for their comrades and superiors regarding gender minority identity and policy, and the opportunity to engage in activism and advocacy in order to support their gender minority peers. One tentative implication of this research is that a reinstatement of the ban on gender minority open service very likely would serve to negatively impact this population. Their need to live authentically, expressed openly and vulnerably by the participants of this study and supported by the literature, is one that is central to their wellbeing. Final results, including a more comprehensive thematic analysis of ongoing participant interviews, will be provided in this presentation. Clinical and theoretical implications based on these findings, study limitations, and future directions for research also will be offered.

I, Jennifer Geiman, am first author of this presentation. I conceived of the project, wrote the proposal and conducted a literature review, and spear-headed participant recruitment. I also played a large role in data collection, transcription, and thematic analysis.

Jennifer LaPorte  
Accounting, MACC  
2017 Annual BAP Regionals  
Denver, CO  
First Author: Yes  
Strategic Planning

This presentation is about how our chapter has developed in the current academic year in comparison to previous years. We will discuss our chapter's strategic planning methods, how we measured our performance, new ideas implemented each year, and provide a SWAT analysis. Using 2015-2016 as the base year, we will discuss how our current objectives were developed. Moreover, what current-year actions contributed to accomplishing these objectives. Further, what results are expected to provide feedback regarding the impact on our chapter. Measurability of results enhances our assessment of what did or did not work. Examples of measurability could include changes in chapter membership demographics over time, changes in membership size over time, interactions among competitor student groups in addition to countless others.

Jennifer Zakotnik-Gutierrez  
Educational Mathematics, PhD  
2017 Conference on Research in Undergraduate Mathematics Education  
San Diego, CA, USA  
First Author: Yes  
McNuggets, Bunnies, and Remainders, Oh My!

Although many mathematicians would agree that knowledge of elementary number theory helps students to build a firmer foundation upon which other mathematical knowledge is based, the area remains relatively unexplored in mathematics education research. Several studies (e.g., Campbell, 2002; Zazkis, 1998) have revealed the difficulties that undergraduates have with divisibility, prime factorization and remainders, however, authors have yet to investigate students' understanding of subjects including the Chinese Remainder Theorem and Frobenius Problem. We believe these areas deserve further study, as students may be able to develop an intuitive understanding of the Chinese Remainder Theorem by exploring concrete problems that elicit the concept of modular arithmetic.

The purpose of our research was to investigate the strategies and reasoning that students exhibit while solving problems chosen to elicit thinking in elementary number theory topics. We interviewed pairs of students from three different mathematics courses in order to investigate the similarities and differences that may occur as a result of partner dynamics and mathematical background. Participants were asked to solve a set of problems that we chose in order to reveal cognitive resources for understanding elementary number theory concepts, including the Frobenius problem and the Chinese Remainder Theorem. Participants were encouraged to work together, discussing problem solutions and sharing their reasoning aloud.

We applied a grounded theory approach to analyze our data, which included interview video transcripts, artifacts, and interview notes, and our open coding process was informed by the literature. Continued analysis was done using a constant-comparative coding method through which we identified a number of distinct student strategies used by the three groups, including guess and check, divisibility rules, use of equations, consideration of final digit, additive reasoning, and multiplicative reasoning.

The results of this study gave us insight into the cognitive resources students rely upon in order to understand the Chinese Remainder Theorem, which is applicable to their understanding of modular arithmetic. This is important to those who teach number theory courses, as these basic strategies provide a foundation upon which to build more formal topics. We also found that these topics are accessible to different student populations, independent of mathematical background, providing an avenue through which to investigate preservice teachers' understanding of division and remainders in general, which can inform classroom instruction on divisibility. In addition, our cases exhibited different partner dynamics which we believe contributed to their choices of solutions and ability to persevere. This result can inform the classroom grouping decisions made by instructors in order to maximize classroom learning.

Jesse Pierson

Music: Performance: Keyboard, DA

2017 Music Teachers National Association Collegiate Chapters Piano Pedagogy Symposium

Jacksonville, Florida, United States of America

First Author: Yes

Why Can't We Be Friends: Using Supplemental Class Piano Repertoire To Reinforce Theoretical Concepts

For instructors of undergraduate music theory, aural skills, and class piano, opportunities for cross-class reinforcement are frequent. As such, there are obvious benefits in coordinating the course schedules of these classes. However, in many universities, the keyboard and music theory areas co-exist as quite separate entities and do not actively take advantage of the many ways they could reinforce their respective efforts. A concurrent survey of prescribed class piano and music theory texts, with special attention given to the sequencing in each, can allow instructors to develop detailed course outlines that capitalize on opportunities for reinforcement across the undergraduate curriculum. I will examine some of the most popular prescribed texts to develop a model for music theory and class piano course outlines that do just this. In a symbiotic approach to many classes required of all undergraduate music majors, supplementary class piano repertoire can also be selected (and perhaps carefully reduced) to demonstrate style traits, harmony, and formal concepts that are discussed in music theory while maintaining an appropriate level of difficulty for the class piano student. Of course, the exact undergraduate curriculum of each University will reflect the particular character of that school. Nevertheless, the model created here will serve as an example of how a more unified curriculum could be achieved in a variety of contexts.

My research has been formatted for a large tri-fold poster display and will be placed on an easel for symposium attendees to view. The poster itself includes a comparison of sequencing between the undergraduate Class Piano and Music Theory curriculum, which is based on a survey of course outlines and syllabi I have gathered from professors all over the country. The poster also includes music examples from popular class piano texts used in major universities to illustrate missed reinforcement opportunities. I have included questions next to the music that is designed to make viewers think more critically about repertoire choices for undergraduate Class Piano. To fill in the gaps between the two classes, I have created handouts with my own carefully arranged repertoire that focuses on tough theoretical concepts, but always adheres to the appropriate level of difficulty for class piano.

Jessica Hovland  
Special Education, PhD  
Council for Exceptional Children 2017 Special Education Convention and Expo  
Boston, MA, USA  
First Author: No

1) Triangulating the IEP with industry standards: Does it make a difference? 2) Are they ready?  
Addressing employment related to literacy skills

I will be co-presenting two studies at the Council for Exceptional Children (CEC) Convention and Expo that focus on transition for students with disabilities. The first presentation examines the relationship between the IEP triangulation process and student transition outcomes and then analyzes whether continued practitioner use of the triangulation process to develop secondary IEPs is supported. The second study describes the perceptions of Colorado transition specialists/educators regarding student employment-related literacy needs, the strategies and resources used to address these skills, and instructional needs related to student workplace literacy skills.

IDEA (2004) mandates transition planning to prepare students for the demands of adulthood. This includes the alignment of transition content in the Individual Education Plan (IEP) with the student's postsecondary goals (Finn & Kohler, 2009). Triangulation is an approach to writing IEP goals that connects student postsecondary goals to academic content standards and industry standards in order to create relevant, legally defensible annual goals (Peterson, et al., 2013). However, there is no research to date that examines whether students with triangulated transition IEP goals have improved postsecondary outcomes (Peterson, et al., 2013). Therefore, we will conduct a multivariate correlational study to identify the relationship between outcomes for transition age students who had IEPs developed using a triangulation process and those with non-triangulated IEPs. Redacted IEPs will be collected from two neighboring school districts to determine the effectiveness of the triangulation process in increasing IEP compliance with Indicator 13 guidelines, increasing student course proficiency and attendance, and decreasing student behavior referrals. In addition, Indicator 14 data will be reviewed to determine if the triangulated IEP impacted post school outcomes. We are in the process of obtaining IRB approval for this research and I will be involved in all subsequent stages of this project as we prepare for the presentation at the CEC conference in April.

Adult success in the twenty-first century requires advanced reading skills that allow for knowledge acquisition and integration from written text (Murnane, Sawhill, & Snow, 2012). According to O\*NET, more than 760 careers require literacy skills and many more require competencies that can only occur when an individual possesses the ability to read. Despite the need to develop these skills, successful interventions have been limited (Carnegie Council on Advancing Adolescent Literacy, 2010). Using a survey, the second project examined transition specialists' perceptions of student employment-related literacy needs and resources used to develop student reading and writing skills. Participants were asked to identify literacy skills necessary for students attaining employment, instructional tools or programs used to support literacy development, resources helpful in addressing these needs, and needs for supporting literacy development. Preliminary results revealed gaps between student literacy skills and the reading and writing tasks employers require. Additionally, a majority of survey respondents reported a lack of literacy program use in their instruction and a desire for professional development related to workplace literacy instruction. I assisted in developing the survey and am currently working with Dr. Peterson and Dr. Urbach on further data analysis and implications for practice.

Jiyoung Park

Sport and Exercise Science: Sport Administration , PhD

2017 Commission on Sport Management Accreditation Conference

Tampa, FL, USA

First Author: No

Sport Management Doctoral Granting Institutions: Curriculum, Focus, and Job Placement

The examination of doctoral programs in Sport Management is important for both the perspective doctoral student and the academic field as a whole. This academic discipline has seen a 287% growth in number of programs from 2003 to 2015. As this growth continues the need for quality professors in the field increases. To meet this demand, the number of institutions granting doctoral Sport management degrees has grown to 47 worldwide (with 35 of these programs located in the United States). Themes were derived from a pilot study and have been utilized to guide the direction of the current study, thus, the purpose of this study is to: (1) provide an overview of Sport Management doctoral programs, (2) analyze the alignment of doctoral programs with programmatic goals and operational indicators, and (3) Cross-reference doctoral program focus with alumni job placement. Surveys were sent to all 47 sport management doctoral granting institutions. Data will be analyzed and final results will be presented regarding sport management doctoral programs. This aligns with the conference subtheme of Student Engagement & Teacher preparation, as it considers how future professors are educated.

Katherine Tepper  
School Psychology, PhD BCBA  
2017 National Association of School Psychology Annual Convention  
San Antonio, Texas, USA  
First Author: No  
Strengths-Based Perspectives from Rural ELL Teachers Working with Refugees

ELL teachers may serve as one of the most important contacts and supports for newcomer refugee students and families, especially in rural communities. We will present the perspectives of these ELL teachers, including linguistic and cultural challenges and strategies. Attendees will learn about advocating for strengths-based perspectives of refugees and partnering with ELL teachers to provide support for refugee students and families. Specific examples and resources for culturally responsive practices will also be provided.

Katherine Tepper  
School Psychology, PhD BCBA  
2017 Collaborative Perspectives on Addiction Meeting  
Albuquerque, NM, USA  
First Author: Yes  
Social and Psychological Influences On Marijuana Use In College Students

A number of factors contribute to marijuana use and misuse in college students, including a range of social and psychological influences. We examined whether specific subscales (social facilitation, peer acceptance, emotional pain, sex seeking) of the Social Context of Cannabis Use Scale (Beck et al., 2009) predicted marijuana use frequency and problem use among 115 college students who reported at least month marijuana use over the last three months. Participants completed a range of measures and a urine screen. The first model examining marijuana use frequency was statistically significant ( $p < 0.001$ ) and explained 50% ( $R^2$ ) of the variance. Results indicated that social facilitation was significantly associated with days of marijuana use in the last month ( $b = 0.772$ ,  $p < 0.001$ ). Model 2 was also statistically significant ( $p < .001$ ,  $R^2 = .28$ ) with social facilitation ( $b = 0.327$ ,  $p < 0.001$ ) and emotional pain ( $b = 0.317$ ,  $p < 0.002$ ) associated with problem use measured by the Rutgers Marijuana Problem Index (RMPI; White et al., 2005). Results are consistent with past literature that has shown that cannabis use disorder is associated with social facilitations and emotional problems.

Katrine Gosselin  
Special Education, PhD  
Council for Exceptional Children 2017 Special Education Conference and Expo  
Boston, Massachusetts, United States of America  
First Author: No  
Get Ready for the Real Deal: Effective and Meaningful Strategies for IEP Meeting Practice

IDEA mandates highlight the spirit of IDEA as one that places great value on parents as meaningful IEP team members and advocates for their child's educational programming. Despite the legal requirement that IEP meetings must include parents in all educational decisions, research indicates the spirit of the law appears to be fractured. Over three decades of research has shown parents have negative experiences with IEP meetings, including feeling ignored, excluded, and in some cases, challenged during the meeting. This divergence between the letter of the law and actual implementation of the law has contributed to disputes over services about a child's educational programming, with some situations leading to either a request for, or an actual due process hearing.

While IDEA states the required components of an IEP document and IEP team membership, there is a lack of research-based guidance regarding effective procedures that can be used to conduct the meeting to promote active parent participation, and ensure all team members are involved in decision-making while creating the IEP. The law emphasizes the "what" of the IEP, rather than the "how" of the meeting. Without strategies, educators are left to conduct IEP meetings based on their own training. Many educators lack instruction specific to IEP meeting practice and the development of collaborative parent-school partnerships. The presentation will provide strategies designed to enhance the IEP meeting process. All major areas of special education are addressed due to the all-encompassing influence IEP meetings can have on students' educational planning.

Using original research conducted by special education faculty members at UNC, this presentation includes IEP meeting strategies collected from several studies. The strategies presented are directly applicable to current IEP meeting practice, and do not require any additional training. The implementation of these strategies, including teacher preparation programs or professional development opportunities could provide educators with the skills necessary to effectively prevent and resolve conflict at the IEP meeting level. Most importantly, the application of these strategies could lead to more directed and aligned meetings with all team members actively participating and creating a meaningful program designed to meet the academic, behavioral and social needs of the student. Existing problems with IEP meetings could be ameliorated, including the reported lack of trust between parents and professionals, poor team culture, and family members being treated as unequal partners. Using qualitative interview methodology, 60 participants described their experiences with non-facilitated and facilitated IEP (FIEP) meetings. Participants in this study represented 13 states and included administrators, facilitators, advocates, educators and parents. Interviews took place over the telephone and followed a protocol with open-ended and follow-up questions. Interviews were transcribed verbatim and analyzed using open, axial, and selective coding procedures. Results indicated participant experiences with FIEP meetings were overwhelmingly positive. Of noteworthy finding, the participants' negative experiences with non-FIEP meetings directly contrasted with their positive experiences with FIEP meetings. Two defining components of the FIEP model surfaced: collaborative components for IEP meeting enhancement, and procedural practices used to enhance the organization and outcome of IEP meetings.

Kayla Brewster  
Sociology: Applied, MA  
2017 Pacific Sociological Association Conference  
Portland, Oregon, United States of America  
First Author: Yes  
A Conflict Approach to Graphic Novels and Literacy

Recently there has been research conducted to assess the use of graphic novels in academia. Most studies have found graphic novels to be a useful tool in facilitating students' learning in classroom settings. Despite the preliminary literature, there has been little information about how graphic novels may be useful to students from lower socioeconomic backgrounds vs students from higher socioeconomic backgrounds. This study seeks to explore how the use of graphic novels in academia affects literacy when socioeconomic status is examined. An experimental research design was conducted on ten participants and the participants also took part in an interview to assess levels of socioeconomic status. Findings from this research showed that deciding whether to use print novels or graphic novels should be approached on a case by case basis, because despite the increasingly visual culture we are immersed in, reading the print version of a book still encourages higher cognitive functioning than reading a graphic novel despite socioeconomic status.

Kristen Gebing  
Audiology, AuD  
Audiology Now 2017  
Indianapolis, IN, USA  
First Author: Yes

## Attenuation Measurements in Children Using Written and Video Earplug Insertion Training

### Overview:

Children have signs of a noise-induced hearing loss (NIHL) in one or both ears (Niskar et al., 2001). Since children are being exposed to hazardous noise levels, hearing loss prevention programs have been developed to help children learn about hazardous noise levels and encourage their use of hearing protection devices. Several studies indicate that training adults in earplug fitting is important in order to achieve sufficient protection (Murphy et al., 2011; Bassette, 2007; Toivonen, et al., 2002; Joseph et al., 2007). There is a need to investigate the effects of training on hearing protector attenuation when fit by children.

The purpose of this study is to compare the untrained and trained personal attenuation rating (PAR) scores for children when using two earplug styles. The null hypotheses states that there will be no statistical difference in PAR scores obtained after training for either style of earplugs.

### Subjects/Methods:

Twenty children with normal hearing between the ages of 7 to 11 years. Real-ear-at threshold attenuation (REAT) measurements were conducted using the NIOSH HPD Well-Fit<sup>®</sup> system coupled to modified Sennheiser HDA 200 circumaural earphones. Attenuation was measured at 500-, 1000- and 2000- Hz and reported as a PAR score. Small-sized formable E-A-R Classic<sup>®</sup> foam earplugs and preformed Ultra-fit 27 triple-flanged earplugs were utilized. Each participant completed PAR measurements under four conditions: untrained, written training, video training and expert trained for both earplug styles.

### Data Analysis:

Paired Student's t-test were used to determine if there was a significant difference between the training conditions for each earplug type.

### Conclusions:

Significant differences ( $p < .01$ ) were found when comparing PAR scores obtained with written or video instructions to the untrained PAR score for the EAR Classic earplug. However, there were no significant differences ( $p > .01$ ) between untrained PAR scores and trained (written or video) PAR scores for the Ultrafit 27 earplug style. There does not appear to be a statistical advantage for written versus video instructions for either type of earplug. Ultra-fit 27 earplugs fit by the children after training provided PAR scores statistically equivalent to the PAR score achieved by the expert adult fitter. This was not the case when children fit the EAR Classic earplug themselves and trained PAR scores were statistically poorer than expert fit. In summary, written and/or video training significantly improves the attenuation performance of the EAR Classic earplug, but not the Ultrafit 27 earplug. However, written or video training further enhances the attenuation provided by the Ultrafit 27 earplug, and PAR scores approximate expert fit scores.

### Relevance:

Flanged earplugs should be recommended for youth in situations where formal training is not provided or available as opposed to formable (foam) earplugs which exhibited poorer PAR scores in the untrained condition. Instructing youth regarding the proper fitting of earplugs provides a greater amount of attenuation and improves the opportunity to prevent NIHL.

Leah Wilson

Educational Psychology, PhD

2017 Collaborative Perspectives on Addiction Conference

Albuquerque, New Mexico, United States of America

First Author: No

Social and Psychological Influences on Marijuana use in College Students

Presentation Description:

A number of factors contribute to marijuana use and misuse in college students, including a range of social and psychological influences. We examined whether specific subscales (social facilitation, peer acceptance, emotional pain, sex seeking) of the Social Context of Cannabis Use Scale (Beck et al., 2009) predicted marijuana use frequency and problem use among 115 college students who reported at least monthly marijuana use over the last three months. Participants completed a range of measures and a urine screen. The first model examining marijuana use frequency was statistically significant ( $p < .001$ ) and explained 50% ( $R^2$ ) of the variance. Results indicated that social facilitation was significantly associated with days of marijuana use in the last month ( $b = 0.722$ ,  $p < 0.001$ ). Model 2 was also statistically significant ( $p < .001$ ,  $R^2 = .28$ ), with social facilitation ( $b = 0.327$ ,  $p < 0.001$ ) and emotional pain ( $b = 0.317$ ,  $p < 0.002$ ) associated with problem use as measured by the Rutgers Marijuana Problem Index (RMPI; White et al., 2005). Results are consistent with past literature that has shown that cannabis use disorder is associated with social facilitation and emotional problems.

Contribution and Importance of Research:

I am helping organize the results portion of the research, writing the results section for the presentation, and helping make edits on the poster as needed. This research is relevant to understand the impact marijuana use has on an individual in personal and academic settings.

Lei Ouyang

Sport and Exercise Science: Sport Administration , PhD

2017 Commission on Sport Management Accreditation

Tampa, Florida, USA

First Author: Yes

Does a Satisfied Customer Care about Price? The Link between Customer Satisfaction and Price Sensitivity in the Fitness Industry

The fitness boom during the second half of the twentieth century created explosive growth in the health fitness industry. Previous research related to the sport and fitness industry has paid more attention to service quality, customer satisfaction, and participation motivation. That research demonstrated weaknesses and limitations in exploring the customers' price perceptions in the context of sport and fitness. Price is one of the most important marketing tools that can directly or indirectly influence customers' buying behavior and has a great impact on sales and profitability of business organizations. The purpose of this study was to examine the relationship between the six constructs of satisfaction and price sensitivity in the fitness industry and to test the moderating effect of gender and participation frequency on the relationship between customer satisfaction and price sensitivity. Participants for this study were 319 fitness club members from a metropolitan area of the United States and, of these, 282 valid samples were used for data analysis. The first part of survey instrument assessed participants' background information and the second part of the survey instrument contained 27 items measuring customer satisfaction and price sensitivity. Customer satisfaction measures were adapted from the Leisure Satisfaction Scale (LSS) which examines six facets: Psychological, Educational, Social, Relaxation, Physiological, and Aesthetic. The price sensitivity measure was adapted from Goldsmith, Flynn, and Goldsmith. All items in the survey were modified to apply in the fitness context. Confirmatory factor analysis (CFA) was conducted to examine the psychometric properties of the measurement model. Once the measurement model was confirmed, structure equation modeling (SEM) analysis was used to examine the relationship between the six constructs of satisfaction and price sensitivity. The SEM multi-group moderation test was used to examine the moderating effect of gender and participation frequency on the relationship between customer satisfaction and price sensitivity.

Based on the initial CFA, two items were deleted because of poor loadings: one from educational satisfaction and the other from social satisfaction. The second CFA with the remaining 25 items revealed the overall fit of the measurement model was adequate ( $\chi^2/df=2.99$ , RMSEA=.054, SRMR=.059, CFI=.96, IFI=.95, TLI=.95). All factor loadings for the indicators were significant to their respective construct ( $p<.05$ ; LSS ranged from .71 to .89 and PSS from .78 to .91). Cronbach's  $\alpha$  values of all dimensions were greater than .7 (from 0.78 to 0.89) and average variance extracted (AVE) for each latent construct was above the recommended cutoff criteria .5 and ranged from .50 to .64. The SEM analysis indicated that educational ( $\hat{\beta}^2=.21$ ,  $p<0.05$ ), relaxation ( $\hat{\beta}^2=.17$ ,  $p<.05$ ), physiological ( $\hat{\beta}^2=.28$ ,  $p<.001$ ), and aesthetic satisfaction ( $\hat{\beta}^2=.27$ ,  $p<.001$ ) were significantly and negatively associated with price sensitivity. However psychological and social satisfaction were not significantly associated with price sensitivity. The SEM multi-group moderation test revealed that with increases in educational, relaxation, physiological, and aesthetic satisfaction, female consumers exhibited a higher level of price sensitivity than male consumers. In addition, the high participation frequency consumers showed a higher level of price sensitivity than the low participation frequency consumers.

The findings from our study would suggest that satisfied sport fitness consumers, particularly males, are not concerned with price. The results indicated that people with more perception of educational, relaxation, physiological, and aesthetic satisfaction, were less price sensitive in the fitness industry. The findings of the current study provide sport researchers and practitioners with important theoretical and

practical implications. Findings from this study may help fitness club managers to cultivate greater participation and ultimately generate more revenues.

Mark Pipes

Music: Performance: Woodwinds, DA

North American Saxophone Alliance Region 2 Conference

Las Cruces, NM, USA

First Author: Yes

The secret to selecting the right saxophone set-up for your performance

This presentation sheds light on the acoustical properties of saxophone mouthpieces, reeds, necks, and horns to give clear information on the specific design benefits of each. We speak in detail about making decisions on equipment while also stressing the importance of developing musical skills. Furthermore, we show a methodology of equipment selection.

Good equipment should allow a musician to find a path to success. Each saxophonist looks to his individual set-up to improve tone, intonation, and performance flexibility. Choices of kit can be daunting for students who are often still developing their own ear. Before investing time and money into a new mouthpiece, neck, or horn, it is important to understand the physical acoustical properties and how each piece works best within the acoustical system. Also, students must still understand how to find their own sound and how to hit the moving target of intonation. Many students try new equipment seeking an easier path to THAT sound. Without a clear understanding of how the acoustical system works, the student is searching in the dark. This lecture surveys equipment, especially mouthpieces, and translates the acoustical properties and relationships of each into plain language so that students have the tools to make educated selections for their own set-up while stressing the importance of aural skill development.

Refereces:

Benade, Arthur. H. Fundamentals of Musical Acoustics. New York: Dover 1990.

Benade, Arthur. H. Horns, Strings, & Harmony. New York: Dover, 1992.

Britton, Ben. A Complete Approach to Sound for the Modern Saxophonist. Spencerport, NY, Britton, 2012.

Hasbrook, V. R. "Alto Saxophone Mouthpiece Pitch and its Relation to Jazz and Classical Tone Qualities," PhD diss., University of Illinois, 2005.

Hemke, Frederick. "The Early History of the Saxophone." DMA diss., University of Wisconsin, 1975.

Ingham, Richard, The Cambridge Companion to the Saxophone. Cambridge: Cambridge University Press, 1998.

Liebman, David. Developing a Personal Saxophone Sound. Medfield, MA: Dorn, 2006.

Teal, Larry. The Art of Saxophone Playing. Los Angeles: Alfred Music, 1963.

My methodology is both research and experience-based from my 13 years of saxophone teaching and 20 years of performance. For this lecture, I contribute the research on saxophone acoustics and on tone production as well as pedagogical and performance experience. Andy Kropp provides a methodology for equipment selection.

### Conclusions:

The reed-mouthpiece relationship is incredibly important and often overlooked. A mouthpiece with conservative traits usually work the best for tone exploration and for intonation. Expensive ligatures and unique saxophone coatings, such as gold plating, make very little difference. A personal sound has everything to do with concept and ear training.

Marshall Milbrath

Sport and Exercise Science: Sport Pedagogy, PhD

2017 College Sport Research Institute Conference on College Sport

Columbia, SC

First Author: Yes

A constructivist approach for teaching student-athlete leadership: Praxis for coaches

This presentation is a 'best practices' piece providing praxis for coaches on the topic of student-athlete leadership. This project was the result of a collaborative effort, primarily facilitated by me, between a colleague of mine at the University of Virginia and me. Data collection involved a review of literature on college student-athlete development. Our results including relevance and importance are found in the abstract below:

Leadership development is a goal of higher education (Astin, 1993), and of the NCAA in preparing student athletes for life after graduation. Evidence suggests that participation in intercollegiate athletics can positively influence leadership skills; however, participation needs to either include purposeful leadership development (Snodgrass, 2015), or allow students to have leadership roles on their team (Grandzol, Perlis, & Draina, 2010). There is evidence that interactions between students in college settings as well as mentorship programs are effective in increasing leadership behaviors. While many characteristics of leadership have been identified, without a plan for action, teaching and promoting these values can be a challenge. Recommendations for development programming policy and campus-level practitioners do exist (Navarro & Malvaso, 2015). These recommendations take a top-down approach where curricula are implemented by an institutional leader and overlooks the established learning environments that exist within each team. Despite this gap, little has been written on how coaches can incorporate purposeful leadership development within the auspices of their own athletic programs. Taking a constructivist approach, Kouzes and Posner's Five-Step Framework (2007) provides a means by which coaches can teach leadership by teaching student-athletes to Model, Inspire, Challenge, Enable, and Encourage positive behaviors consistent with team values. This poster shares objectives through which the five steps can be taught as well as an alignment of accepted leadership characteristics with their related objectives. Sports administrators can use this as a source to promote leadership development with sports teams either in absence of an institutional development program or to reinforce themes within existing initiatives.

## References

Astin, A.W. (1993). *What matters in college: Four critical years revisited*. San Francisco: Jossey-Bass.

Grandzol, C., Perlis, S. & Draina, L. (2010). Leadership development of team captains in collegiate varsity athletics. *Journal of College Student Development* 51, 403 -418.

Navarro, K., & Malvaso, S. (2015). Synthesizing Research on the Contemporary Student-Athlete Experience: Implications and Recommendations for NCAA Student-Athlete Development Programming. *Journal of College and Character*, 16(4), 263-269.

Posner, B.Z. (2004). A leadership development instrument for students: Updated. *Journal of College Student Development*, 45, 443-456.

Snodgrass, W. J. (2015). *Game On: A Qualitative Study of Leadership Skills Developed Through College Athletics* (Doctoral dissertation, Indiana University of Pennsylvania).

Matthew Brinton  
Higher Education & Student Affairs Leadership, PhD  
2017 National Association of Student Personnel Administrators (NASPA) Annual Conference  
San Antonio, Texas, United States of America  
First Author: No  
Leveraging Technology for College Student Education and Practice

There are a number of affordances and challenges involved when leveraging technology toward enhancing student learning and providing digital student support. Panelists will reflect on how technology is implemented at our institutions & graduate preparation programs.

This presentation seeks to bring together scholars and practitioners in the field to discuss how the newly adopted Technology Competency (ACPA & NASPA, 2015) is being utilized to enhance college student education, learning, and development. As digital technologies continue to become a critical part of the role of a student affairs professional, highlighting the need to continue educating professionals and integrating various technological tools into practice. It will also offer specific tools, skills and resources for practitioners, faculty and graduate students to apply in their personal practice.

The currently articulated Technology Competency provides one framework for understanding how to engage in personal and professional development around technology. Using Mishra and Koehler's (as cited in Major, 2015) discussion of Technological Pedagogical Content Knowledge (TPACK), panelists will explore how the competency framework can be articulated into practice for professional growth and graduate student learning. Finally, the panel will be open to discussing ongoing debates about the challenges associated with integrating the technology competencies into student learning and professional practice, particularly as it relates to proliferation of digital technologies.

The NASPA/ACPA technology competency is grounded in knowledge, skills, and dispositions needed to effectively embrace and effectively utilize technology toward ends of student development and learning. For this presentation, we are building on the foundations of the competency document by embracing Mishra and Koehler's (cited in Major, 2015) discussion of Technological Pedagogical Content Knowledge (TPACK). Although this model was developed for online educators, it has utility for college student educators at all levels.

TPACK recognizes that educators who utilize digital technologies in their practice need to critically reflect on how technologies themselves may constrain or open pedagogical practices, as well as how knowledge is created and developed. For college student educators, critical reflection about the possibilities and limitations of proliferating technologies is vital. Simply embracing new platforms, applications, or digital hardware without examining how learning and development might be structured or impacted is not ethical or responsible. Conversely, avoiding or purposely excluding particular technologies due to lack of familiarity or fear of potential consequences may unnecessarily limit students creative engagements, learning, or creation of new knowledge.

As Majors (2015) states, "we need. . .not only to have knowledge of content, pedagogy, and technology, but also to have knowledge representing the interrelated and interdependent blending of these knowledge bases." Each of the panelists reflects on the incorporation of technologies into their professional practice or teaching by exploring how digital technologies impact pedagogy and content knowledge in our daily work.

Melissa Lafferty  
Higher Education & Student Affairs Leadership, PhD  
2017 Rocky Mountain Psychological Association Annual Convention  
Salt Lake City, UT, USA  
First Author: Yes

What does mindfulness mean to you?: Undergraduate students' perceptions of mindfulness

Even though mindfulness has Buddhist cultural and religious origins, it has emerged as a secular concept in the field of counseling psychology. Mindfulness has been described as “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn, 1994, p.4) and “bringing one’s complete attention to the present experience on a moment-to-moment basis” (Marlatt & Kristeller, 1999, p. 68). Given that mindfulness training has been shown to produce beneficial effects for a wide range of physical and psychological symptoms, interventions that incorporate mindfulness training have been developed to treat a number of clinical disorders (Baer, 2003). Because mindfulness may be considered a religious or spiritual concept, it is important to consider how the client’s worldview may affect treatment. The purpose of this study was to uncover and interpret the meanings associated with mindfulness in college students through the use of in-depth interviews. Therefore, the research questions for this study were as follows:

Study Question 1: What does the term mindfulness mean to a college student?

Study Question 2: Are undergraduate students’ perceptions of mindfulness secular or religious?

The results of an interpretivist qualitative study will be presented to uncover the meanings associated with mindfulness. Participants were seven first-year undergraduate students enrolled in an introductory level course designed to foster the successful transition of students from high school to college. Because information-rich cases are needed to adequately answer the research questions, purposeful sampling was used (Merriam & Tisdell, 2016). This project took place at a mid-size public university in the Rocky Mountain region of the United States.

Data was collected through semi-structured face-to-face individual interviews (Merriam & Tisdell, 2016). Through open, axial, and selective coding, recurring patterns were captured to construct categories (Creswell, 2013). An interpretivist research stance was used to form larger meanings from the data (Crotty, 1998).

A model that represents common themes in the participants’ perceptions of mindfulness will be presented. Consistent with previous models (Kabat-Zinn, 1994), participants described mindfulness as an intra- and inter-personal concept, encompassing awareness of self and awareness of others. While common themes were identified in definitions of mindfulness, differences in the relationship between mindfulness and religion emerged. When treatment planning, clinicians need to take into consideration not only client’s preferences (Swift, Callahan, & Vollmer, 2011) and religious and spiritual beliefs (Worthington, Hook, Davis, & McDaniel, 2011), but also the client’s perceptions of mindfulness. The results of this study will inform clinicians on best practices when choosing a therapeutic intervention.

Nicole Sellars

Sport and Exercise Science: Sport Administration , PhD

10th Annual College Sport Research Institute Conference on College Sport

Columbia, SC, USA

First Author: No

“Salary Discrepancies Between Men’s and Women’s Head Basketball Coaches: An Investigation of the NCAA Power Five Conferences”

Abstract: Disparities in the wages paid to males and females have been well documented and publicized throughout history, resulting in continued and increased criticisms of gender-based societal constructs. Although recognition of the earnings gap between men’s and women’s head coaches at the collegiate level is far from novel, little research focuses on the sport of college basketball to determine what variables influence these discrepancies. Given that the National Collegiate Athletic Association (NCAA) head coaching labor market is homogeneous, meaning that men and women are hired to perform comparable work, gender discrimination will be discernable when revenue and productivity are assessed (Brook & Foster, 2010). The purpose of this study, therefore, is to examine which and to what extent a variety of economic and performance variables impact the salaries paid to both male and female head basketball coaches at the Division I level.

Humphreys (2000) was one of the first to explore the head coaching salary differences between men’s and women’s basketball teams and concluded that the large gap between the salaries of men’s and women’s basketball coaches may be attributed to a variety of factors that include the prestige of men’s sports and the impact that such prestige has on an athletic director’s decision to fund men’s teams. Brook and Foster (2010) parallel the findings of Humphreys, concluding that although men’s basketball programs pay their coaches more, the variation in salary paid to the coaches of men’s and women’s basketball teams is not statistically significant. This study will seek to determine which variables are statistically significant drivers of compensation and whether they differ between male and female coaches.

In order to determine whether compensation differences among male and female basketball coaches are justified, a variety of revenue and program specific variables were analyzed. The data for this study was compiled from two sources; coach-specific variables were obtained from the websites of each athletic department while athletic department revenues were obtained through the Freedom of Information Act (FOIA). Written requests by the researchers to each public university in the Power 5 conferences returned 36 total reports for the fiscal year 2015. Using three separate multiple linear regressions (one that included both genders and two that were gender specific), the impact of 15 revenue and three coach-specific variables were analyzed.

When assessing all coaches, with gender as a dummy variable, gender was not found to have a statistically significant impact on head coaches’ salary, suggesting that overt gender discrimination is not a viable explanation for the differences in compensation. Independent analysis of the two genders produced results that indicated ticket sales were one of the primary drivers of compensation.

Ultimately, the results of this study lend support to the devaluation and gender role theories in that compensation appears to be driven by gender stereotypes and a societal devaluation of women’s basketball.

My contribution to this study lies in the review of literature, theoretical framework, and conclusion sections.

Nina Rocha  
Educational Mathematics, PhD  
2017 Conference on Research in Undergraduate Mathematics Education  
San Diego, CA, USA  
First Author: Yes  
McNuggets, Bunnies, and Remainders, Oh My!

Although many mathematicians would agree that knowledge of elementary number theory helps students to build a firmer foundation upon which other mathematical knowledge is based, the area remains relatively unexplored in mathematics education research. For instance, several studies have revealed the difficulties that undergraduates have with divisibility, prime factorization and remainders (Campbell, 2002; Zazkis, 1998). However, authors have yet to investigate students' understanding of subjects including the Chinese Remainder Theorem and Frobenius Problem. Given its applications in computing, coding, and cryptography, the Chinese Remainder Theorem is a worthwhile, accessible, and unexplored area of number theory. The purpose of our research was to investigate the strategies and reasoning that students exhibit while solving problems chosen to elicit thinking in elementary number theory topics. We interviewed pairs of students from three different courses—Mathematics and Liberal Arts, Fundamental Mathematics II, and Calculus I—in order to investigate the similarities and differences that may occur as a result of partner dynamics and varying mathematical backgrounds.

Existing literature on elementary number theory has centered around students' understanding of divisibility, parity, and primality. We identified two areas within elementary number theory in which the research has shown students struggle: preference for procedural demonstration over conceptual demonstration of knowledge, and general difficulty with rational and whole number division and remainders (Brown, Thomas & Tolia, 2002; Campbell, 2002; Kaasila, Pehkonen, & Hellinen, 2010; Zazkis & Campbell, 1996).

Three 60-minute video-recorded interviews were conducted, each with a pair of students from one of the target classes. The semi-structured clinical interviews began with general information regarding the students' majors, previous math classes, and mathematical experiences. The main focus of the interview was to have participants solve a set of problems that we chose in order to reveal cognitive resources for understanding elementary number theory concepts. We used a grounded theory approach to analyze the data, including interview video transcripts, artifacts, and interview notes. The literature informed the open coding process that we used for the first pass individually (Miles & Huberman, 1994). We then used a constant-comparative method to identify the strategies that participants used in solving the tasks (Strauss & Corbin, 1990).

We identified a range of strategies including manipulating final digits, listing multiples while accounting for remainders, and implementing divisibility rules. We note that participants often incorporated multiple strategies on each problem, making it difficult to attach a single label to certain tasks or groups. We had hoped to see some models of student strategies that resembled the Chinese Remainder Theorem in our interviews. Although this was not a result in this study, we believe that constructing a design experiment would be a worthwhile endeavor. One could also explore participants' previous mathematical knowledge and how they transfer these experiences into a number theory class, adopting actor-oriented transfer as a theoretical framework (Lobato, 2003). As co-authors, we contributed equally to conducting research and writing up the final report. We jointly submitted the paper, created the PowerPoint presentation together, and will be presenting with one another during our session.

Noelle Whitney  
School Psychology, PhD BCBA  
45th Annual Meeting of the International Neuropsychological Society  
New Orleans, Louisiana, United States of America  
First Author: Yes  
White Matter Correlates of Early Academic Proficiency in Young School-Age Children

I recently completed a poster presentation at the 45th Annual Meeting of the International Neuropsychological Society. As part of this research, I was actively involved in reviewing the existing literature, conducting data analysis, and interpreting the data. I also created the poster presentation for the Conference. The information outlined below describes the presentation.

The acquisition of reading and math are multifaceted processes that require the integration and communication of widespread networks of cortical regions and white matter tracts. Converging neuroimaging evidence has demonstrated that white matter pathways are associated with individual differences in reading and math skills. White matter pathways are essential for the speed and efficiency of information processing between brain regions, which has been found to facilitate cognitive processes and domain-specific skills that underlie reading and math. Traditionally, studies have utilized diffusion-tensor imaging (DTI) and functional magnetic resonance imaging (fMRI) to investigate white matter maturation, while also largely focusing on development in late childhood. Using a myelin-specific magnetic resonance imaging (MRI) technique, we explored the relationship between myelin content and academic achievement in reading and math among typically developing children.

Participants included 84 typically developing children (approximately 4- to 11-years-old) who were enrolled in an ongoing longitudinal study of neurodevelopment. This study has followed more than 250 children with no prenatal and perinatal complications or familial history of psychiatric or neurological disorders. Inclusion into this analysis required completion of a resting state fMRI and standardized testing on two measures (i.e., Letter/Word Reading and Mathematical Calculation subtests) of the Academic Achievement Battery (AAB). Participants were scanned during non-sedated sleep using age-optimized protocols on a Siemens Tim Trio with 12-channel head radio frequency array. Whole-brain imaging data was acquired and voxel-wise myelin water fraction was calculated. Functional connectivity analyses were performed using the Functional Magnetic Resonance Imaging of the Brain (FMRIB) Software Library (FSL) and matrix laboratory (MATLAB). Nonparametric correlation coefficients were calculated between intravoxel myelin and academic performance on the AAB subtests, while controlling for overall cognitive ability and age.

Consistent with previous research, the maturation of white matter appears to play a role in the development of cognitive processes underlying reading and math skills. As we hypothesized, increased brain myelin was associated with higher scores on measures of early reading and math skills. Reading skills appeared to recruit more discrete white matter areas as opposed to math skills, which involved areas more disparately located throughout the brain. Although overlapping brain regions were noted across functions of reading and math, there were also unique areas specific to each process. Specifically, higher math scores were positively correlated to myelin development in the right parietal lobule, posterior corona radiate, right and left caudate, left cingulate gyrus, left superior longitudinal fasciculus, whereas higher reading scores were associated with increased myelin content in the cerebellum and left inferior fronto-occipital fasciculus. This work provides further understanding of the brain-behavior association, as the development of similar white matter brain structures supports mastery of both early reading and math skills in young children.

Peter Stoepker  
Sport and Exercise Science: Sport Pedagogy, PhD  
2017 American Educational Research Association Annual Meeting  
San Antonio, Texas, United States of America  
First Author: No  
State Physical Education Program Changes from 2001 to 2016

This study examined state physical education (PE) policy changes from 2001 to 2016 by analyzing data reported in The Shape of the Nation Report: Status of Physical Education in the USA. Policies related to state mandates for PE, time/credit requirements, fitness testing and assessment requirements, adoption of state standards, and allowance of substitutions were examined over five editions of the report using repeated measures ANOVA and Friedman's chi-square. It was discovered that a majority of PE-related policies have not changed over the past 15 years despite calls by numerous public health agencies for enhanced PE in schools. There was, however, a significant increase in the number of states adopting standards and requiring fitness testing and assessment in PE, mirroring the broader shift in education towards standards and assessment.

The four authors split the work evenly, and will all take part in the presentation at AERA. The findings for this study are significant because they bring a call to action of the current state of physical education in the United States.

Rammi Hazzaa

Sport and Exercise Science: Sport Administration , PhD

2017 Applied Sport Management Association Conference

Baton Rouge, Louisiana, USA

First Author: Yes

An Investigation of CSR Activity in Football Championship Subdivision (FCS) Athletics Departments

Corporate social responsibility (CSR) has received significant attention over the last several decades. The concept of CSR refers to “actions that appear to further some social good” (McWilliams & Siegel, 2001, p. 117). As organizations expand, these entities might consider acknowledging their responsibility to make significant contributions to the well being of individuals and their communities. Community support gives organizations the opportunity to succeed in the marketplace and be socially conscience. Sport organizations have also begun to widely embrace the principles and practices of CSR (Babiak & Wolfe, 2009). Therefore, it might be advantageous for college athletics departments to use their unique platform to give back to the community that supports their teams and University.

Within intercollegiate athletics, CSR initiatives have become an important component to community support and the student-athlete experience. The NCAA and almost all of its member institutions preach a commitment to socially responsible activities in the local community. These efforts are aimed at assisting those within their respective local communities (Walker & Kent, 2009). While several studies have examined CSR in FBS college athletics, none to our knowledge have investigated its use in FCS departments. CSR offers a unique opportunity for FCS schools to increase their exposure and other potential benefits. Hence, the purpose of this preliminary study sought to investigate the prevalence of CSR activity in FCS athletics departments.

To address the frequency of CSR activity in FCS schools, a content analysis was utilized using all 125 athletics departments. This investigation was done through community service-related activities found on each of the athletics departments’ websites. Additionally, all 13 FCS conferences were compared to examine possible disparities.

Results revealed 22% of FCS athletics department websites included CSR-related endeavors on their websites. Most of the activities were related to youth and goodwill efforts, such as volunteering at the local food bank, visiting kids at elementary schools, and community clean up days. All but one FCS conference had at least one school report CSR efforts.

These findings indicate there might be a need for more FCS athletics departments to make community outreach efforts a priority moving forward. It is recommended that athletics administrators encourage student-athletes to become involved in more community services and to exhibit those endeavors on their websites. Walker and Kent (2009) found that fans viewed CSR favorably and recognized it as an important business strategy of a sport organization. Thus, CSR can provide many potential benefits to FCS schools such as increasing exposure, and building more desirable relationships with community stakeholders.

Shanika Harvey  
Higher Education & Student Affairs Leadership, PhD  
2017 Student Affairs Administrators in Higher Education Conference  
San Antonio  
First Author: Yes  
Navigating Silence as Agency, Oppression, and Empowerment in Student Affairs

Goals of the presentation: The goals of this presentation are to help participants consider the variety of ways in which students and student affairs and higher education professionals encounter silence in their careers. Additionally, we will propose silence as an act of resistance for minoritized social identities. Finally, we will introduce how silence manifests in educational and student affairs settings and promote a reframing of how silence is viewed and can be utilized as a strategy and tool for scholarly and career success.

Description of session: This program draws upon the lived experiences of each of the presenters as well as current research and scholarship pertaining to the ways in which silence manifest in student affairs pedagogy and professional practice. In order to achieve the intended learning outcomes, the presenters will begin with a warm-up activity that exposes how participants experience silence and feel about silence in learning environments. This exercise will lead to a discussion about silence and silencing, drawing upon participants' own experiences of being silenced and how they respond to silence. Next, the presenters will discuss the scholarly literature on manifestations of silence, including the concept of culture of silence (Ira & Freire, 1987), silence as agency (Papart, 2010), how silence is informed by culture (Osajima, 2007), and how silence benefits learning and cognition (Hamelock & Friesen, 2010).

Degree of Contribution: Completed in depth review of the literature on cultural of silence and created Power point presentation along with co-presenters.

Relevance: Student affairs is becoming more diverse and as such student affairs practitioners will become cognizant of ways in which marginalized individuals move through campus and their strategies for success.

Shawn Bydalek  
Chemistry: Research, MS  
253rd American Chemical Society National Meeting & Exposition  
San Francisco, CA, USA  
First Author: Yes

Synthesis of 2-Arachidonoylglycerol: An endocannabinoid with potential as an anti-cancer drug

The presentation being given will cover the results of the attempted synthesis and derivatization of 2-arachidonoyl glycerol (2-AG). Preliminary results for cell assays will also be addressed, if available. Current literature surrounding the treatment of a wide variety of cancer types with endocannabinoids, of which 2-AG is a member, have shown anti-proliferative and pro-apoptotic effects associated with endocannabinoid treatment ( Bifulco, and Di Marzo. (2009). Targeting the endocannabinoid system in cancer therapy: A call for further research. *Nature Medicine*. 8(6)). Successfully developing cancer treatments around endocannabinoids will require efficient and effective methods to synthesize and isolate them. To date, several methods have been successfully carried out to synthesize 2-AG, however, there are various deficiencies with previous methods that can potentially be improved upon . To that end, a new methodology was considered, using dihydroxyacetone as a starting material and using a synthetic scheme that employed the tert-butyldiphenylsilyl chloride protecting group. Successful verification of each step in the method was accomplished with a combination of techniques, primarily proton NMR and infrared spectroscopy. Once isolation of the final product is achieved, screening against cancer lines to establish efficacy will be conducted and further attempts at modification of 2-AG will be attempted to tune receptor interactions, with the hope of improving overall efficacy. Results to date have demonstrated advantages and disadvantages with the current methodology, leaving it somewhat ambiguous as to whether or not the method employed has, on balance, improved on previous methodologies. The merits of this new synthetic method will be outlined in a poster presentation format for the 253rd meeting of the American Chemical Society. The research was conducted by the primary author under the supervision of Dr. Richard Hyslop.

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#### Promoting Counselor Self-Compassion and Wellness Through Authentic Leadership Development

This is a poster presentation that explores counselor self-compassion and its relation to wellness through Luthans and Avolios' Developmental Process Model of Authentic Leadership. As the current president of the Rho Epsilon Chapter of Chi Sigma Iota at UNC, I am using a personal case example to highlight how counselors in training participated in a service activity for our chapter utilizing the models' four components of self-awareness, internalized moral perspective, balanced processing, and relational transparency to facilitate and increase awareness around counselor wellness and self-compassion.

This presentation is relevant as recent upheavals in society have energized tremendous demands for Authentic Leadership (Northouse, 2013). As counselors, it is essential to be compassionate to ourselves and to others in order to promote wellness and to lead authentically (Neff, 2011). Luthans and Avolios' Developmental Process Model (George, 2003) highlights Authentic Leadership's connection with counselor and client wellness.

This is not an original research presentation but is a conceptual application presentation. There are not subjects, methods, or data to be analyzed. Instead the research team worked together to apply the abstract concepts of leadership and wellness into a concrete framework that can be used by counselors and counselor educators to support practice.

I have contributed to this presentation by working with Lauren Ireland and Connie Couch to develop the presentation idea, write up the handouts, create the composite case study, and complete the relevant literature review. I am not the lead author, however, when completed, I will have contributed about 45% to developing, creating, and presenting the material.

This presentation aims to demonstrate that student leadership organizations, like Chi Sigma Iota, can help Authentic Leaders further develop and model compassion for self and others by engaging in community service projects that afford counselors the opportunity to listen to other people's stories and that immerse them in diverse groups, cultures, and populations that are different from their own. This is an important contribution to counselor training models and the concrete application of theoretical concepts in counselor education.

George, B. (2003). *Authentic Leadership: Rediscovering the secrets to creating lasting value*. San Francisco: Jossey-Bass.

Neff, K. D. (2011). *Self-compassion: The proven power of being kind to yourself*. New York: William Morrow.

Northouse, P. G. (2013). *Leadership: Theory and practice* (6th ed.). Thousand Oaks: SAGE.

Tricia Steeves  
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2017 Rocky Mountain Psychological Association  
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Recognizing and Working with Shame

Shame is a primary emotion and is correlated with addiction, depression, and suicidality. Competent treatment by mental health providers requires, first and foremost, the ability for the clinician to recognize shame manifesting in the client. This can prove a difficult task due to an almost universal lack of formal training across graduate programs. While many mental health training programs tend to offer classes that focus on the results of shame (e.g., addictions classes, suicide-prevention training), there is a startling lack of focus on the recognition and understanding of shame itself.

The purpose of this literature review poster was to explore the features of shame, including an operational definition, available measures, and treatment considerations, as a resource for mental health clinicians. This presentation includes: (a) an operational definition of shame as understood by the Western culture; (b) literature that explains the etiology of shame; (c) a number of valid assessment tools for measuring shame across the developmental lifespan, (d) literature that has identified common co-occurring emotional distress and psychopathology diagnoses that accompany shame (e.g., suicidal ideation, substance abuse disorders); (e) methods that clients can use to cope with shame, and (f) evidence based practices that mental health clinicians can use to effectively treat shame.

William Harned  
Music: Performance: Keyboard, DA  
2017 Music Teachers National Association National Conference  
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Technical Exercises Used By Colleges For Keyboard Students

From research for a pedagogy course last year, I emailed piano teachers around the country and asked them what keyboard exercises they use with their keyboard students. I compiled the information and found commonalities and organized the data into categories. I received quotes from teachers from Julliard School and others that I will present on my poster board. The event is called a Poster Session, where students will present information about various topics and will have handouts available and will answer questions. The information will be beneficial to show trends and to perhaps inform people about technical exercises that they were unaware.