

2024 Interprofessional Health Sciences Research Symposium

Faculty Research Symposium:

Wednesday, April 24th (IHS Room 3517 and [live streamed on Teams](#))

2:00 pm

Title: How Combined Cerebellum and Spinal Cord Direct Current Stimulation Affect Walking? A Pilot Study

Presentation Team: Jui-Te (Ray) Lin, PT, PhD; Andrew Lenneper; Andrew Ruggiero

Abstract: Walking is a complex movement that necessitates precise regulation of neural circuitry within the cerebellum and spinal cord. Non-invasive transcranial and transcutaneous direct current stimulation (tDCS and tsDCS, respectively) have emerged as promising tools for modulating the neural excitability of the underlying neural tissues. Therefore, the study aims to explore the combined stimulation effect on modulating walking. The study follows a randomized repeated-measures crossover design with two visits. Ten healthy young adults (aged 24-25 y/o) participated in the study. Direct current stimulators for tDCS and tsDCS were set at an intensity of 2.5 mA with 2×2 pads. The anodal tDCS electrode was placed over the cerebellar hemisphere on the side where participants had a longer step length. The cathode tDCS electrode was placed on the ipsilateral buccinator muscle. An anodal tsDCS electrode was positioned on T11, whereas a cathodal tsDCS electrode was placed over the right shoulder. A new walking pattern was introduced using a split-belt walking protocol. During the asymmetry walking section, belt speeds were set faster on the side where participants had a shorter step length. The treadmill protocol began with 2 minutes of comfortable walking, followed by 15 minutes of asymmetrical walking with active/sham stimulation, and concluded with 5 minutes of comfortable walking. Over-ground walking parameters were collected before, immediately after, and 15 minutes after the treadmill walk. The primary outcome of the study is the symmetry index. With active stimulation, participants exhibited greater retention of the new walking patterns compared to sham conditions immediately after treadmill training ($p = .038$), but not after 15 minutes of rest ($p = .594$) on overground walking. These preliminary findings showed that combined anodal tDCS and tsDCS may excite neural circuitry necessary for locomotor learning and thus retain learning in walking. However, the retention of learning is temporary.

2:30 pm

Title: Effectiveness of IPE Opportunities Between PA and SLP Students Using a Simulated Pediatric Case Study

Presentation Team: Megan Baumley, MS, CCC-SLP; Michelle McWeeney, PhD, PA-C; Christine Fernandez, MD; Abby Saunders, PhD, PA-C; Caryn Grabowski, MS, CCC-SLP, BCS-S

Abstract: Purpose: Interprofessional collaboration is an imperative skill to train in graduate health science programs to improve outcomes in patient-centered care. The purpose of the presentation is to evaluate if a collaborative pediatric simulation between SLP and PA graduate students improved the following areas pre and post IPE even. The following areas were evaluated were: understanding roles and responsibilities of members of the health care team, knowledge of when to refer to other professionals, clinical problem solving, comfort identifying developmental milestones, and the value of IPE exercises. In this mixed methods study, a pre and post survey was designed where students completed surveys consisting of 13 questions. Six of the 13 questions sought demographic information and exposure to healthcare settings prior to the study. The remaining seven questions focused on the scope of practice of each profession, the

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students' confidence and comfortability referring to another profession, understanding of developmental milestones, and the value of IPE experiences on education.

3:00 pm

Title: Inclusive Sexual History Taking Skills of PA Students: Qualitative Assessment

Presentation Team: Abby Saunders, PhD, PA-C; Michelle McWeeney, PhD, PA-C; Christine Fernandez, MD; Jurga Marshall, DMS, PA-C; Amy Gogtas, PA-C; Vanessa Rodriguez, EdD, PA-C

Abstract: Purpose: Sexual history taking is an integral skill for clinicians, as sexual health is a component of a complete medical evaluation. Medical curricula lack effective sexual history instruction, creating gaps in clinicians' confidence and proficiency. Average SGM curricular inclusion content is five-hours over a four-year span. This study investigates how students perceive their comfort level and biases during a simulated sexual history taking encounter. Methods: Data were derived from student reflection assignments following simulated sexual history interviews. Researchers analyzed and coded data. Themes were labeled and paired with corresponding quotes from data. Results: Comfort and bias were predetermined main themes, each with eight sub-categories that emerged including embarrassment, insight, lack of exposure, comfort/discomfort with sexual subject matter, and preparedness. Students' personal perceptions of comfort and biases represented a broad spectrum within the overarching concepts. Conclusions: Trainee insight can guide educational and instructional modifications on proficient, inclusive sexual history taking. Exercises with sexual history interviews inclusive of SGM populations are essential tools to build student comfort with sexual content topics and diminish potential for invasive biases to undermine the integrity of sexual history taking. Future research is necessary, including implementation of pre and post surveys to gauge efficacy of instruction.

3:30 pm

Title: Self-care agency (SCA) among U.S. emergency medical service (EMS) practitioners during the COVID-19 pandemic: Foundational research for creating a functional definition of self-care literacy

Presentation Team: Michelle Lee D'Abundo, PhD, MSH, CHES; Laura Marinaro, PhD, RD, ATC; Vanessa Rodriguez EdD, MS, PA-C; Scott Lancaster, PhD, MHA, NRP

Abstract: Self-care agency (SCA) is part of the emerging concept of self-care literacy. SCA is the ability to meet and recognize care needs, assess available resources, and act to achieve goals. Self-care literacy is defined as knowledge, motivation, and competencies to promote health, prevent disease, and maintain health with or without the support of a healthcare provider. In the U.S., over 269,000 EMS practitioners assess injuries and illnesses provide emergency medical care. During the COVID-19 pandemic, SCA was assessed using the Self-Care Agency Scale-Revised among 91 EMTs. Findings will be presented and implications for defining self-care literacy will be explored.

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Thursday, April 25th (IHS Room 3519 and [live streamed on Teams](#))

2:00 pm

Title: Artificial Intelligence (AI): The Journey Ahead for Higher Education

Presentation Team: Natalie Neubauer, EdD, CCC-SLP; Genevieve Pinto-Zipp, PT, EdD, FNAP

Abstract: As the technology associated with Generative AI (GenAI) generates human-like content by leveraging deep learning model innovations, its application in higher education is continuing to expand. While AI is not new, its integration into the academy as a teaching and learning tool is for many academicians. Recognizing the potential benefits and challenges of AI in higher education is foundational to developing the new skills needed so that we can integrate AI effectively in a meaningful way for student learning. As a Catholic university, "Seton Hall exists to participate in the ongoing interaction of faith and reason in the collaborative and cumulative pursuit of truth." As faculty we must challenge ourselves to ask, "how can generative Artificial Intelligence (AI) be used to pursue truth and advance student learning?" The purpose of this oral presentation is to provide a critical review of the current literature surrounding AI utilization in health science higher education, offering a scholarly path forward for meaningful dialogue and pursuit of evidence assessing the utility of AI across healthcare disciplines within the University's Catholic mission.

2:30 pm

Title: Promoting Healthcare Students Active Learning via Interprofessional Virtual World Learning Experiences

Presentation Team: Lorene Cobb, PT, DPT, EdD; Genevieve Pinto-Zipp, PT, EdD, FNAP; Leslie Rippon, PhD, ATC; Lauren Snowdon, PT, DPT, EdD; Marcia Downer, PT, DPT, NCS; Alicia MacGregor, MS, OTR; Kim Miller, MS, PA-C; Natalie Neubauer, EdD, CCC-SLP; Dawn Maffucci, PhD, ATC; Lisa Sheikovitz, MA, OTR/L

Abstract: As health professions educators, we must infuse innovative technologies and practices to meet the learning needs of students and prepare them for patient encounters. Virtual world learning experiences (VWLE) offers students an immersive environment to engage in complex scenarios with other healthcare professionals. The Center for IPE in Health Sciences has designed and infused VWLE into its two yearlong IPE Journey of Professional Transformation curriculum. In this presentation the team will share the VWLE educational model designed to train students in interprofessional (IP) teamwork and clinical problem-solving. Two diverse IP VWLE will be illustrated using virtual platforms (Mursion, Second Life). Learning outcomes specific to the two VWLE will be discussed. Data supporting VWLE impact on students: knowledge and perceptions (K&P) of telehealth practices, K&P of a person's psychosocial wellbeing, knowledge of emergency preparedness and the ability to work as part of an interdisciplinary team will be shared. Additionally, faculty will share pearls of wisdom gathered from the experiences. Recommendations will be provided for the development and integration of future VWLE immersive learning opportunities across health disciplines that are cost and time effective while supporting student readiness for entry-level person-centered care.

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Friday, April 26th (IHS Room 3519 and [live streamed on Teams](#))

11:00 am

Title: Self-care Literacy: An Emerging Concept in Health Promotion and Education

Presentation Team: Michelle Lee D'Abundo, PhD, MSH, CHES; Vanessa Rodriguez EdD, MS, PA-C; Patricia A. West-Low, PT, MA, DPT, PCS; Kyle Downey, MLIS

Abstract: Research about self-care has shown a mediating effect on stress and well-being especially during COVID-19. However, how to put self-care into action through the concept of self-care literacy has been minimally explored. Participants will learn about self-care agency, and how primary research conducted by the presenters is relevant to creating a functional definition of self-care literacy. While many healthcare practitioners offer suggestions about how people can participate in self-care, not all suggestions maybe be helpful or appropriate for an individual's situation. For example, mindfulness is often mentioned as a method of self-care, yet most practitioners are only aware of the benefits without being aware of the risks. Therefore, inadequate practitioner knowledge could negatively impact self-care literacy. Suggestions will be made for evidence-based and participant-centered self-care strategies to be used in health promotion.

12:00 pm

Title: Addressing Ethical Dilemmas in Speech-language Pathology

Presenter: Kathleen Nagle, PhD, CCC-SLP

Abstract: The four main ethical principles of healthcare provide a broad basis for clinician decision making when more than one treatment option is medically indicated or when there is disagreement on how to proceed. Autonomy, for example, is self-government, or the ability to make decisions for oneself (Varelius, 2006). Beneficence literally means to do good. It refers to the obligation of the provider to act for the benefit of the patient (Varkey, 2021). Nonmaleficence is the inverse obligation to do no harm to the patient. Justice is fair, equitable and appropriate treatment of persons. ASHA's four Principles of Ethics are related to but different from these universal principles and highlight clinicians' responsibility to (I) prioritize the welfare of persons served professionally and those who act as research participants; (II) maintain professional competence; (III) engage and inform the public; and (IV) uphold the profession and maintain professional relationships (ASHA, 2023).

I will first review the four main ethical principles in healthcare and how they can sometimes conflict. Then I will present one or two examples of a clinical case that presents an ethical dilemma, from the following options covered at ASHA:

- * Multidisciplinary collaboration
- * Supervision of students, fellows, and/or department employees
- * Accent modification services
- * Gender affirming therapy

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Graduate Student Research Symposium (IHS Room 1314/1316)

12:30 pm (Presentation will be [live streamed on Teams](#))

Title: Understanding self-care literacy among healthcare practitioners working from home during the COVID-19 pandemic: A qualitative analysis using AI

Student Presenter: Ariana Coletta

Faculty Mentor: Michelle Lee D'Abundo, PhD, MSH, CHES

Department of Interprofessional Health Sciences and Health Administration

Abstract: Self-care literacy has been defined as knowledge, motivation, and competencies to promote health, prevent disease, and maintain health with or without the support of a healthcare provider. Little is known about how healthcare practitioners who were able to work from home during the COVID-19 pandemic took care of themselves. Forty-four practitioners responded to the Self-Care During COVID-19 Questionnaire from September 2022-January 2023. Data about the meaning, methods, and prevention of self-care were analyzed using AI. Findings aligned with previous manual coding as exercise and sleep/relaxation were the most often mentioned categories of self-care. Implications for self-care literacy will be explored.

1:00 – 3:00 pm (In-person only, Rooms 1314/1316)

Title: The Impact of Commute Time on Allied Health Graduate Students' GPA

Student Presenters: Jason Santos; Nandita Aghara; Crystal Fermano; Elizabeth Kuriakose; Kimberlee Manlapaz; Nadine McManus; Callista O'Brien

Faculty Mentor: Michelle McWeeney, PhD, PA-C

Department of Physician Assistant

Abstract: Purpose: Graduate medical education requires increased independent learning and greater responsibility. Failure to keep up with material presents an increased risk of poor academic performance. One possible barrier to strong academic performance is long commute time. Commuting time has been previously researched to analyze its impact on academic performance, physical health, and stress among undergraduate students. However, few studies have examined the impact of commute time on allied health graduate students. This study analyzed the correlation between commute time and academic performance utilizing students' GPAs. Additionally, an analysis was performed to determine if there was a difference in GPA between students who studied during their commute and those who did not. Moreover, this study also analyzed a correlation between commute time and predicted academic performance, as well as perceived adequacy of study time. Methods: A non-experimental survey-based research design was used to evaluate individuals who were in the didactic portion of an allied health program. Qualtrics was used to administer the 15-item questionnaire, which included questions regarding participants' current GPA, average daily study time, commuting time/productivity, and participants' perspective on academic performance and commute time. The anonymous survey was distributed through email. Analysis of the data via Pearson's coefficient, independent t-test, and Spearman's rho was performed using SPSS. Results and Conclusions: Our findings indicate there is no correlation between GPA and commute time in this study. A significant correlation was found between commute time and students' beliefs that their academic performance could improve if they lived closer to campus. Students who studied while commuting were

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found to have a statistically insignificant higher GPA compared with students who did not study during their commute. Future studies should be conducted on larger allied health graduate student populations to identify other factors that may influence academic performance.

Title: Beyond numbers: Navigating the benefits and limitations of qualitative data analysis

Student Presenters: Karissa Sirois; Megan Smith; Taylor King

Faculty Mentor: Kathleen Nagle, PhD, CCC-SLP

Department of Speech-Language Pathology

Abstract: The purpose of this presentation is to describe the experience of conducting a study using a qualitative research method. Some scientists are uncomfortable with the subjectivity inherent in qualitative methods and analysis, believing them to be less rigorous than quantitative methods. Such beliefs limit the types of research questions that can be investigated: The question drives the methodology. The richness and depth of qualitative inquiry offer insights that capture the complexities of individual experiences and the contextual factors affecting them. For our study of English language learners' perceptions of their own pronunciation and the concept of accent modification, a survey would not do. We used structured interviews to elicit participants' experiences in making themselves understood, and their attitudes about the concept of accent modification. This presentation describes the benefits and challenges of conducting a qualitative study as student researchers with a limited time frame.

Title: How do English Language Learners perceive accent modification?

Student Presenters: Karissa Sirois; Megan Smith; Taylor King

Faculty Mentor: Kathleen Nagle, PhD, CCC-SLP

Department of Speech-Language Pathology

Abstract: The burden of speaking a second language fluently but with a noticeable accent drives many English Language Learners (ELLs) to attempt to change their accent. Second-language accent is very resistant to change in adults, however, particularly if the second language was learned as an adult. Such training costs money and time. Expecting ELLs to carry the burden of successful communication seems one-sided and raises ethical questions for speech-language pathologists. The purpose of this pilot study was to investigate the perceived benefits and challenges associated with accent modification by English language learners (ELLs). Five participants were interviewed via about their experiences as ELLs, with a particular focus on pronunciation and intelligibility. By employing thematic analysis of their transcripts, we identified factors influencing these individuals' attitudes toward accent modification and the impact of their own accents on social interactions. Themes including Strategies, Confidence and Effects of Conversation Partner were developed by reviewing commonalities and differences reported by participants. This research highlights the subjective nature of personal experiences and contributes to a deeper understanding of accent modification perspectives. The results of this pilot study are necessarily limited by the small sample size but provide a foundation for a planned study with a larger sample size.

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Title: Detecting Cognitive Decline in Parkinson's Disease: Is Patient Report Enough?

Student Presenters: Jacqueline Fagan

Faculty Mentor: Caryn Grabowski, MS, CCC-SLP, BCS-S

Department of Speech-Language Pathology

Abstract: It is known that people with Parkinson's Disease (PD) are often unaware of their problems with spoken communication (Tjaden, 2008). It is unknown, however, if the same anosognosia overlaps to the cognitive decline commonly experienced in PD. Self-reported measurements of cognition, such as structured interviews or rating scales, are common methods of assessment utilized by physicians and other providers (Opara, 2012). When self-reported measures serve as the primary means of determining symptoms and treatment, it is likely to paint an inaccurate picture of a patient with PD. This is particularly concerning as it may cause delays or absence of referrals for treatment of these patients. In this study, we examined the self-reported cognitive scores of 14 participants with PD from the UPDRS and compared it to their standardized scores on subtests of the Woodcock-Johnson IV Tests of Oral Language including rapid picture naming and memory for sentences. We compared these two scores to determine if there were discrepancies between self-reported cognitive deficits and objective test scores. In a preliminary analysis, the level of cognitive disturbances identified on objective tests demonstrates markedly greater impairments when compared to self-reported items pertaining to cognition on the UPDRS. The results of the study affirm our hypothesis that patients with PD may be challenged to identify the true severity of cognitive symptoms. Speech Language Pathologists must advocate for the use of objective measures of cognition at onset and throughout the course of care in the presence of this progressive neurological disease.

Title: Exploring Medical Students' Perceived Readiness to Serve as Culturally Competent Practitioners

Student Presenters: Michel'le Bryant, PhD, MPA

Faculty Mentor: Genevieve Pinto-Zipp, PT, EdD, FNAP

Department of Interprofessional Health Sciences and Health Administration

Abstract: The US population is more culturally diverse than ever (1,2). Although advancements have been made in promoting the nation's overall health, health disparities persist among different racial and ethnic groups (3). To promote person-centered care practices, medical students must be ready to serve diverse patient populations and provide equitable care. Despite their training, some medical students reported feeling unprepared to treat diverse patient populations, potentially impacting their clinical practice and patient care outcomes (4-7). This study explored medical students' perceived readiness to serve as culturally competent practitioners (8). As noted in the literature, readiness is a state of preparedness. The theoretical lens guiding this study was the Readiness Theory which infers that one's readiness encompasses their situational knowledge, attitude, and confidence (9,10). A mixed-method approach incorporating semi-structured interviews exploring the constructs of readiness via open ended questions and included the completion of a quantitative validated instrument (GWCCS) measuring culture competence via the lens of The Purnell Model for Cultural Competence was employed in this national study. While most of the final-year medical students expressed readiness to engage in culturally competent practice, discrepancies emerged regarding their confidence levels. Based upon the readiness theory, confidence is one of the three constructs which defines one's overall readiness and thus leaves us

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with concerns regarding students' actual readiness. These findings highlight the need for standardized, comprehensive cultural competence curricula that promotes students' cultural competence knowledge and perceived importance and confidence as we seek to address health disparities.

Title: Association of Prior Healthcare Experience with EI of PA Students

Student Presenters: Christie Joshi; Gabriela Chandrika; Mark Golibart; Jenna Piscioti; Samantha Vail; Bethany Davidheiser; Rebecca Youssef
Faculty Mentors: Michelle McWeeney, PhD, PA-C; Christine Fernandez, MD
Department of Physician Assistant

Abstract: Introduction: Emotional intelligence (EI) measures how individuals process their own emotions and how they perceive and react to their peers' emotions. For physician assistant (PA) graduate programs, applicants are required to accumulate hours of healthcare experience prior to matriculation. We sought to determine if type of healthcare experience, number of hours of experience prior to entry into a PA Program, and phase of PA program is correlated with EI in PA students. Methods: We conducted a non-experimental study which consisted of 21 survey questions assessing demographics, extroversion, resilience, type of prior healthcare experience, phase of program, hours of experience, and EI. Extroversion, resilience, and EI were measured using validated measures. Multiple regression was performed to determine if total EI was correlated with phase of PA school, type of healthcare experience, and hours of experience, while controlling for gender, race, resilience, and extraversion. Results: 93 PA students in NJ completed the survey. The model was significant ($F = 6.407$, $\text{Sig} < 0.001$). Participants with 0-400 hours of experience were associated with a 0.229 decrease in total EI score ($B = -0.229$, $p = 0.048$). Phase of PA school and type of healthcare experience prior to PA school were not statistically significant in predicting the EI of PA students in this model. Of the control variables, both female gender ($B = 0.203$, $p = 0.032$) and resilience score ($B = 0.469$, $p < 0.001$) were positively correlated with total EI. Conclusion: In summary, having a decreased number of clinical healthcare hours was a negative predictor of EI. This demonstrates that individuals with less clinical experience are associated with having a lower emotional intelligence. Given these findings, PA Programs may want to consider placing higher weight to applicants who have accumulated more hours.

Title: Stimulation Carry-Over Effect on Locomotor Adaptation

Student Presenters: Andrew Ruggiero; Andrew Lennep
Faculty Mentor: Jui-Te (Ray) Lin, PT, PhD
Department of Physical Therapy

Abstract: Learning effects are an important variable to control in studies to ensure that the outcome is a result of treatment. This learning effect was something we wanted to account for in our study. Transcranial direct current electrical stimulation (tDCS) is a modality used to modulate neural excitability. In the study by Lin et al, we applied a current to affect motor learning during gait training. Subjects were required to attend the Gait lab for two data collection days separated by a week. Subjects were randomly treated with SHAM stimulation one day and a second day of actual stimulation. One of the outcomes used in this study, which we wanted to analyze, was the step length of the subjects when they were walking at a comfortable speed and at a fast speed. To determine if there was a learning effect, the current abstract evaluates the

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homogeneity of the average step length of each leg, at a comfortable speed and a fast speed, at baseline between day one and two. Our hypothesis is that the step length during comfortable and fast speeds before treatment will not be significantly different between day one and day two. A Wilcoxon Signed-Rank Test was used to compare the step lengths of each leg over the two days, at both comfortable and fast speeds. The results demonstrate that with a p-value of 0.05, there was no significant difference in the data for any leg step length, regardless of the speed. Because there was homogeneity in the data at the baseline tests for each day, we can assume that there was no learning effect from the prior session. Our study demonstrated that the results obtained on the second day were independent of the intervention they received in the prior session.

Title: Implementing the 2020 WHO Rehabilitation Competencies Framework (RCF) to advance interprofessional curricula and advance research opportunities in the academy.

Student Presenters: Sara Roux, Candan Nixon

Faculty Mentors: Angela Lis, PT, PhD, CEU; Genevieve Pinto-Zipp, PT, EdD, FNAP

Department of Physical Therapy and Department of Interprofessional Health Sciences and Health Administration

Abstract: The WHO Rehabilitation Competency Framework (RCF) describes competencies, behaviors, and tasks relevant to rehabilitation workers. The study aims at designing an interprofessional experience (IPE) informed by the RCF and the School of Health and Medical Sciences priorities and resources. A Mixed-method two phase study approach was employed. Phase 1, survey assessed interprofessional competencies, curricular needs, and awareness of RCF. Phase 2, stakeholders' interviews further explored perceptions about RCF competencies and IPE. 563 subjects were asked to participate. Phase 1, 12% (n=63) completed the survey. RCF awareness was limited to 15% of students and 23% of faculty. "Practice" domain was the main curricular priority, competencies linked to this domain were rated as "of need" with salient results for "Communicates effectively with person, family and health-care team" and "Adopts rigorous approach to problem solving and decision-making". Phase 2, the thematic analysis statements arising from the participants voices further confirmed the survey quantitative results. Overarching finding supports the need to create scaffolded multi-staged simulation (SIM) experiences that would promote case complexity and realism and ensure diverse population exposure, provision of immediate feedback, and practicing interdisciplinary collaborations. Institutional support was also seen as vital to overcome potential barriers to executing the learning experiences. Throughout the entire research project, faculty and student researchers collaborated to develop the survey, secure IRB approval, conduct Phase 1 and Phase 2 procedures, process and analyze data, and develop interpretations and insights. Phase 3 of the project will focus on designing, based on Phase 1 and 2 data, a new IPE competency-based simulation experience that will be integrated into the current SHMS IPE curricula.