

## **Research Grant – Spring 2014**

**Faculty member: Jennifer A. Bugos**

**Unit: School of Music. Music Education**

**Project/Proposal Title: Intense Piano Training Enhances Self-Efficacy, Physiological Stress, and Verbal Fluency in Aging**

### **Abstract:**

The purpose of this project is to support dissemination of research data examining the effects of intense piano training on self-efficacy, physiological stress, and verbal fluency in aging adults at the International Association for Music and Medicine (IAMM) held in Toronto, Canada, from June 25-27th, 2014. An abstract entitled, "Intense Piano Training Enhances Verbal Processing in Older Adults," underwent peer review and was accepted for spoken presentation. In addition, an abstract entitled, "Intense Short-Term Piano Training Enhances Musical Self-Efficacy in Aging," was accepted for poster presentation. Dissemination is necessary to build my scholarly reputation and foster future collaborations.

### **Proposal:**

The International Association for Music and Medicine (IAMM) provides opportunities for faculty from diverse disciplines to disseminate research, develop collaborations, and promote scholarship. The goals of this project are to disseminate research findings and develop international collaborations. Specifically, the abstract entitled, "Intense Piano Training Enhances Verbal Processing in Older Adults," underwent peer review and was accepted for spoken presentation. This research provides empirical data on the effects of intense piano training on cognitive abilities in older adults using standardized neuropsychological measures. We measured cognitive performance over three time points: an initial pre-testing session, a second pre-testing following a two-week no treatment control, and a post-testing session upon the completion of piano training. Intense piano training consisted of 30 hours of training (three hours per day) in which high levels of achievement were required. The intense piano training consisted of finger dexterity exercises, music theory and standard piano repertoire.

Alternate forms of standardized neuropsychological tests were administered at each time point to control for practice effects (Delis et al 2001). One particular area of interest is verbal fluency, an area associated with decline in aging individuals. Results of a Repeated Measures ANOVA for letter fluency revealed significantly more words generated post-training,  $F(2,34)=16.1, p<0.001, d=0.80$ . No significant difference across time points was found for category fluency. For the category switching fluency, the results of the Repeated Measures ANOVA show significant improvement post-testing,  $F(2,34)=9.1, p<0.001, d=1.05$ . Pairwise comparisons reveal that significant differences were found only between pre-testing 2 and post-testing sessions. This suggests that short-term intense music education opportunities have the capacity to transfer to cognitive performance. Results of this research have many implications for music education programs as well as programs that address the needs of older adults as verbal fluency is among one of the first areas of cognition affected by age-related cognitive decline and early dementia.

A separate abstract was reviewed and accepted for poster presentation at the International Association for Music and Medicine (IAMM) entitled, "Intense Short-Term Piano Training Enhances Musical Self-Efficacy in Aging". This research examines the effects of piano training on general and musical self-efficacy as well as physiological stress. For this interdisciplinary research, we employed a series of self-report measures and physiological measures (salivary

cortisol) to examine the effects of intense piano training on self-efficacy and stress levels. The mission of the University of South Florida, College of the Arts (CoT A), and the Center for Music Education Research (CMER) supports international and cross-disciplinary research and scholarship exchange to promote music education research initiatives. Presentation at the IAMM will represent USF and CMER in scholarship exchange while offering opportunities for dissemination to an international audience.