Application for Ashby Dialogue Grant

Title of proposed inquiry: Magnetic Resonance Imaging of Emotion, Creativity, Exercise, and Injury

Funds requested for: Academic Year

Faculty co-ordinators:

Name: Dr. Thanujeni Pathman  Department: Psychology

Dr. Robert Kraft  Department: JSNN

Other faculty participants:

Name: Kari Eddingon  Department: Psychology

Paul Silvia  Psychology

Randall Schmitz  Kinesiology

Jennifer Etnier  Kinesiology

Donna Duffy  Kinesiology

David Teachout  Music Education

Rebecca Adams  Gerontology

Student participants. List names and majors, if known. If student participants have not yet been identified, explain how they will be selected and the mix of undergraduate and graduate students that is planned.

Dialogs will be open to all graduate and undergraduate students interested in participating in the discussion. Majority of students are expected to be graduate students from labs of participating faculty. We expect approximately 1.2 students per faculty member.

Names and institutions of proposed visitors (specify payment amount for each):

Dr. Paul Laurienti, Wake Forest University, $400

Dr. Dustin Grooms, Ohio State University, $800

Dr. Roberto Cabeza, Duke University, $400
Magnetic Resonance Imaging of Emotion, Creativity, Exercise, and Injury

Access to a 3T Magnetic Resonance Imaging (MRI) scanner at UNCG has encouraged a few faculty in the Departments of Psychology and Kinesiology to explore how MRI may be used in their own research. Both structural and functional imaging are being used in a variety research areas from memory, learning, and creativity to exercise and cognition to the link between anterior cruciate ligament (ACL) injury and osteoarthritis. While the breadth of research at UNCG is diverse, they are all using advanced imaging acquisition and image analysis methods in their investigation. While the opportunity for new research at UNCG is tremendous, what is missing at UNCG is a forum where faculty and students can further develop their skills, share their experiences, and discuss their ideas with each other.

Our goals for the Ashby Dialogs are to:

1) **Explore** how imaging has been used by other investigators outside of UNCG to pursue similar research areas by having guest lecturers. By highlighting the advances of other investigators in various fields, we are hoping that more faculty at UNCG will see the possibilities and potential of MRI for their own research.

2) **Create** an environment where the faculty and students can learn about advanced imaging techniques and how these techniques can be used to answer their scientific questions.

3) **Enable** faculty and students to employ these advance imaging methods in their own research.

4) **Encourage** collaborations between the Department of Psychology, Department of Music, and the Department of Kinesiology for investigating scientific questions of mutual interest.

We will achieve these goals by having a three seminars given by external guest lecturers, monthly meetings to discuss published journal articles, and weekly meetings to share hands on experience with image analysis methods throughout the 2015-2016 academic year.

**Guest Lectures:** We will have three guest lecturers come to UNCG to give talk in their area of expertise. Two speakers will come at the end of the fall semester in 2015. Two speakers will come at the end of spring semester in 2016. These guest lecturers were chosen based on UNCG faculty interest in their areas of expertise. Dr. Paul Laurienti at Wake Forest University School of Medicine has tentatively agreed to give a talk on Networks of the Aging Brain. Dr. Dustin Grooms from Ohio State University has tentatively agreed to give a talk on his work on ACL injury and neuroplasticity. We are still undecided about our third speaker. Potential speakers are Dr. Roberto Cabeza at Duke University who studies memory and emotion, Dr.
Bonita Marks at UNC whose research interests include the effects of aerobic exercise on brain integrity in older adults, or Dr. Christian Waugh who studies stress and emotion with functional MRI. We will have our list of speakers confirmed before the start of the 2015 Fall Semester.

**Journal Club:** We will meet once a month for 90 minutes in a journal club format to review articles written by our guest lectures and other relevant papers. Both faculty and students are expected to attend these meetings. A focus of these meeting will be to discuss and understand the imaging methods used in the presented papers and how those methods could be duplicated at UNCG.

**Hands-On-Meeting:** Once a week for two hours, we will have an open and optional meeting where analysis methods discussed in the papers and those being used by faculty at UNCG will be implemented. This will focus on running publically available software on example data sets. This will give faculty and students and open forum to analyze data, ask questions, and have questions answered. These meetings will be led by Dr. Robert Kraft. an MR physicist with over 20 years of experience. He is currently an adjunct faculty at the Joint School of Nanoscience and Nanoengineering.

**Interested Faculty:** Faculty in the Departments of Psychology and Kinesiology have expressed an interest in participating the Ashby Dialogs on MRI and have agreed to participate along with their students.

In the Department of Psychology,
- Dr. Kari Eddington is studying adult depression,
- Dr. Paul Silvia is studying creativity,
- Dr. Thanujeni Pathman is studying memory and learning in the developing brain

In the Department of Kinesiology,
- Dr. Donna Duffy is studying the affects of concussion of female athletes,
- Dr. Jennifer Etnier is studying the role of exercise on cognition in older adults,
- Dr. Randall Schmitz is studying the link between ACL injury and Osteoarthritis.

In addition to the faculty noted above, Dr. David Teachout, Professor and Head of the Music Education Department and Dr. Rebecca Adams, Professor and Gerontology Program Director, have expressed an interest in participating. We have also had three recent UNCG graduates express an interest in attending. Dr. Roger Beaty Ph.D. in the Department of Psychology, Dr. Robin Wilkins in the Department of Music, and Ms. Morgan Moser in the Department of Gerontology.
Administrative Details: Dr. Thanujeni Pathman and Dr. Robert Kraft will be the co-organizers of the Ashby Dialogs. The $2000 budget for the Ashby Dialogs on MRI will be spent on travel expenses and a modest honorarium for the speakers. Local speakers within driving distance will be awarded $400. Since Dr. Dustin Grooms will be traveling out-of-state and require an overnight stay, we expect his expenses to be approximately $800. The remaining $400 dollars will be used for light refreshments at the Journal Club meetings and Guest Lectures talks, in addition to cost of advertising the Guest Lectures to the UNCG community (printed flyers).