Basak's Annual Report for DKR grant awarded from 2014-2020

The aim of our project was to understand how two different genres of video game learning (strategy game vs. action game) are related to different cognitive abilities, brain structure and brain function in healthy older adults and MCI patients. We have multiple journal manuscripts from this dataset: white matter connectivity and memory (Qin et al., 2016); white matter connectivity and cognitive predictors of Strategy and Action game learning (Ray et al., 2017); age-related differences in brain activity at task-switching (Nashiro et al., 2018; Basak et al., 2018), and age-related differences in functional connectivity in three different cognitive tasks (O'Connell & Basak, under review). We have two papers pertaining to this data set currently under review. One is on how past gaming experiences influence action and strategy games (Smith et al., under review), and another is on differential functional connectivity of cognitive networks during memory task for the two types opf games (Basak et al., under review). We also have two more papers that we are working on to submit to peer-reviewed journals.

We had also proposed collection of pilot longitudinal data to see if strategy game learning can engender greater benefit to both cognitive and brain function in older adults. In addition to our previously collected data, with the funding from Darrell K Royal Foundation for Alzheimer's Disease we have added 40 individuals who underwent either word puzzle training or strategy video game training. In total, we have about 66 participants who were recruited for this training study, we have neuroimaging data on 47 participants. This study is expected to yield multiple papers including behavioral, brain activity during 2 fMRI tasks, resting state fMRI and DTI data. We aim to submit results from this data by summer of 2020 to peer-reviewed journals for publications. This pilot data set, along with our other funded projects, enabled me to apply for an NIH grant that I received in 2018.

I sincerely thank DKR foundation for their generous support in my early years as a tenure-track professor. We have also ensured that in each publication and presentation, we cited DKR Foundation for Alzheimer's disease as a source for research funding.

Sincerely,
Dr. Chandramallika Basak
Associate Professor
University of Texas at Dallas