

## **Guinevere Eden, Ph.D.**

MIND Institute Distinguished Lecturer Series – March 11, 2015

### ***Biographical Information***

Guinevere Eden is a Professor in the Department of Pediatrics and the Director of the Center for the Study of Learning at Georgetown University Medical Center. Her research has been supported by grants from the National Institutes of Health and the National Science Foundation. Dr. Eden and her colleagues were the first to apply functional MRI to the study of dyslexia in 1996, and she continues to investigate the neural bases of dyslexia and the neural correlates of successful reading intervention.

She is past-president of the International Dyslexia Association, a non-profit organization dedicated to helping individuals with dyslexia. She has also served as Scientific Co-Director for the National Science Foundation-funded “Science of Learning Center” housed at Gallaudet University. Dr. Eden received her B.S. in Physiology from University College London, her Ph.D. in Physiology from the University of Oxford, and conducted her postdoctoral training at the National Institutes of Health.

### ***Presentation Abstract (4:30 pm presentation)***

#### ***Brain Imaging Studies of Reading and Reading Disability***

Reading is a cultural invention and has to be learned through explicit instructions, resulting in the utilization of a variety of brain areas that were not designed to read specifically. This presentation will show how brain imaging technology has been used to reveal brain areas that are involved in word processing in typical readers and how these differ in children and adults with reading disability (e.g. dyslexia). The integration of brain function with psycho-educational testing data has contributed to our understanding of the brain-behavioral relationships for skills that support learning to read. I will discuss the neural correlates of successful reading intervention in dyslexia and how it is that dyslexia is associated with weaknesses in arithmetic performance. Brain imaging can play an important role in testing different theoretical frameworks that have been put forward to explain the etiology of dyslexia and in this presentation I will highlight the importance of distinguishing between cause and consequence of dyslexia. For example, what is the role of the visual system in dyslexia? Are the deficits reported in visual processing a cause or an epiphenomenon of dyslexia? What do we know about sex-specific differences in dyslexia? Together, the answers to these questions are critical in understanding the etiology of this common learning disability.