

## **Children, Family, and Brain Development**

Proposal for 2016 Cross-School "Bring Your Own Idea" program

Anneliese M. Schaefer, J.D., Ph.D. (School of Medicine)

Susan F. Appleton, J.D. (School of Law)

Deanna M. Barch, Ph.D. (College of Arts & Sciences)

Our understanding of children's social and emotional development and our interpretations of their behavior are increasingly influenced by scientific findings on brain development. Such understanding and interpretations, in turn, shape public policy and legal precedent. For example, brain imaging has complemented behavioral studies on cognitive development, with functional and structural imaging showing protracted maturation of the prefrontal cortex, a region that strongly contributes to higher-order cognitive processing or "executive function". This delayed maturation was the basis for three separate rulings by the United States Supreme Court (2005, 2010, and 2012), setting aside certain sentences for criminal offenses by juveniles as "cruel and unusual" in violation of the Eighth Amendment of the Constitution. In each of these cases, the Justices determined that the juvenile offenders should be treated differently from adults, based on the immature status of their brains. The American Law Institute has recently undertaken a "Restatement of the Law of Children, Children and the Law" designed to address questions of children in the justice system as well questions of autonomy (e.g., medical decision-making, and rights/privileges such as access to alcohol). This Restatement will rely heavily on results and interpretations of developmental science. In addition to applications of developmental cognitive neuroscience to the law, a number of studies are using social and neuroscience tools and methods to ask questions about how children's brains are impacted by socio-economic status (SES). The aim is to understand the mechanisms that may mediate the impact of SES on brain, cognitive and social development, such as family adversity, inflammatory pathways, and/or the microbial environment, all of which themselves are influenced by SES. For example, brain imaging studies in children have shown that being raised in poverty is associated with thinning of the cortex, reduced hippocampal and amygdala volumes and altered connections of these brain regions to the rest of the brain. Importantly, these changes in brain function and structure are also associated with later behavioral changes in children, such as increased depression.

This integration of neuroscience, social science, and law is ongoing and highly active. Despite that, and despite the fact that Washington University is a leader in each of these fields, there is little interaction across these disciplines at WU. Here, we hope to address this omission by planning for a conference in spring 2017 that is aimed to address children, family, and brain development. This BYOI program is an ideal opportunity to bring together faculty members from the Medical School, the College of Arts & Sciences, and the Brown School of Social Work who investigate early experience and brain development, metrics to evaluate/intervene in regards to environmental effects on premature babies, the effects of home instability on cognition, and other questions relevant to understanding the ways in which a child's early environment shapes brain development and behavior. Further, faculty members from the School of Law who focus on children and family will provide a unique perspective about the implications of brain science for public policy and law and about how such findings are applied. Conversation among the full group will enable focus for the conference including a balance of sub-topics (speakers and panel

discussion) that will best draw participation from the Washington University community. Moreover, these informal meetings will allow discussion on curriculum enhancement based around the conference, such as survey courses or journal clubs. Finally, these gatherings may spark productive collaboration on these important topics of brain development and society.

### **Invited Participants**

- 1) [Annette R. Appell, J.D.](#)  
Professor of Law  
Director, Children and Family Advocacy  
Clinic
- 2) [Susan Frelich Appleton, J.D.](#)  
Lemma Barkeloo & Phoebe Couzins  
Professor of Law
- 3) [Deanna M. Barch, Ph.D.](#)  
Professor and Chair, Department of  
Psychological & Brain Sciences  
Gregory B. Couch Professor of Psychiatry
- 4) [John N. Constantino, M.D.](#)  
Blanche F. Ittleson Professor of Psychiatry  
and Pediatrics  
Director, William Greenleaf Eliot Division of  
Child & Adolescent Psychiatry  
Co-Director, Intellectual and Developmental  
Disability Research Center
- 5) [Patrick J. Fowler, Ph.D.](#)  
Associate Professor, Brown School of Social  
Work
- 6) [Patricia L. Kohl, Ph.D., M.S.W.](#)  
Associate Dean for Social Work  
Associate Professor, Brown School of Social  
Work
- 7) [Joan L. Luby, M.D.](#)  
Samuel and Mae S. Ludwig Professor of  
Child Psychiatry  
Director, Early Emotional Development  
Program
- 8) [Marcus E. Raichle, M.D.](#)  
Alan A and Edith L Wolff Distinguished  
Professor of Medicine  
Professor of Radiology, Neurology,  
Neuroscience, Biomedical Engineering
- 9) [Anneliese M. Schaefer, J.D., Ph.D.](#)  
Associate Professor of Neurology  
Director, Office of Neuroscience Research  
Executive Director, Hope Center for  
Neurological Disorders
- 10) [Bradley L. Schlaggar, M.D, Ph.D.](#)  
Chief of the Division of Pediatric and  
Developmental Neurology  
Ernest and Jane G. Stein Professor of  
Developmental Neurology  
Co-Director, Intellectual and Developmental  
Disability Research Center
- 11) [Cynthia Rogers, M.D.](#)  
Associate Professor of Psychiatry
- 12) [Desiree A. White, Ph.D.](#)  
Professor of Psychological & Brain Sciences

**Preferred format:** To be determined.