Research Statement and Outline
David A. Townsend

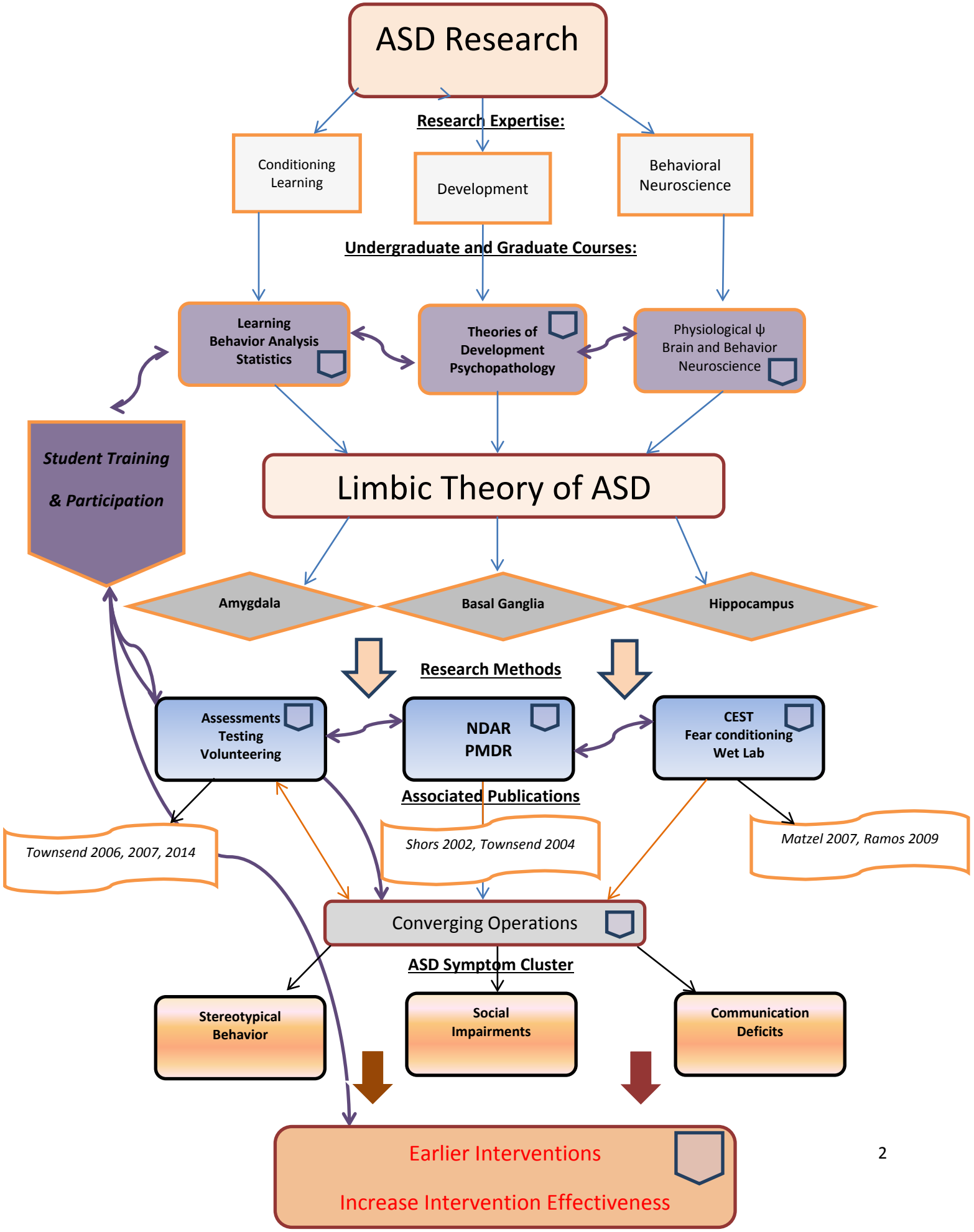
My research is motivated by what I see as the fragmented state of theoretical models and interventions surrounding Autism Spectrum Disorder (ASD), a developmental disorder traditional viewed as having a triumvirate of symptoms; in social interaction, verbal and nonverbal communication and repetitive behaviors. Through the use of my three behavioral areas of expertise I incorporate converging research operations with the goal of the earliest possible detection and interventions for individuals with ASD and increasing the effectiveness for the treatments of ASD.

My research has three overarching themes. First, I am an adherent to the limbic theory of ASD etiology (Townsend, 2004) which proposes that the most effective way to untangle the complex web of idiopathic symptomology of ASD is, currently, to focus on brain based functions that are associated with normal function in social interactions, communication, and repetive behaviors. This theory does not suggest that the deficits associated with ASD are not more biologically holistic than just the amygdala, hippocampus, and basil ganglia, but that the limbic system is the optimal brain based model to explore the central nervous system's role in the cognitive, emotional, and behavioral cluster of ASD symptoms and their origins. I have adapted a battery of tasks that I helped develop (Matzel, 2006) for use with non-human mammalian species - The Cognitive Emotional Sensory Test Battery (CEST). The CEST is comprehensive, relatively economical (many assays can be self-constructed) and quick through-put test. The advent of transgenic ASD models (Sigma-Aldrich®) has only increased the value of the CEST's speed and thoroughness.

The most important component of my research is the involvement and training of the next generation of psychologists and scientists. Currently, much of my research into ASD's etiology involves the use of large data-sets collected nationally, such as The National Database for Autism Research (NDAR) and Pediatric MRI Data Repository (PMDR). Not only is this data essential for meeting my research goals but the data has also proved to be invaluable for teaching both undergraduate and graduate students the research process, from hypothesis forming to reporting results. These databases have allowed my students, under my supervision, to gain hands on experience with the entire scientific method, especially using statistics and interpreting results. Additionally, I have found that young psychologist share my passion for understanding ASD and improving the lives of those with developmental disabilities.

Finally, I continue to incorporate my role as a behavioral researcher in my volunteer and consulting work, providing testing, assessments, and intervention plans for individuals and families struggling with Autism Spectrum Disorder's deficits and unique behavioral expressions.
This continued dedication has also proved to be an effective medium for involving students and colleagues; reminding me that research itself is a social and cooperative enterprise.

My passion to help and conduct research with developmentally unique individuals has been kindled, not only by my own experience, but additional by my exposure to Dr. Sandra Harris at the DDDC (Rutgers).I am essential a discipline of Sandra Harris. I studied with Sandy; she was on my Quals committee and has been a wonderful source of information and inspiration. I am a supporter of her theoretical outlook, methods, and general way of being in the world. Sandra has been a huge influence on my desire to be useful and productive with special need populations (along with the exposure to ASD in two nieces and additional blood relations).


ASD Research
Research Expertise:
Conditioning Learning
Development
Behavioral Neuroscience
Undergraduate and Graduate Courses:
Learning Behavior Analysis Statistics
Theories of Development Psychopathology
Physiological ψ Brain and Behavior Neuroscience
Student Training & Participation
Limbic Theory of ASD
Amygdala
Basal Ganglia
Hippocampus
Research Methods
Assessments Testing Volunteering
NDAR PMDR
CEST Fear conditioning Wet Lab
Associated Publications
Townsend 2006, 2007, 2014
Shors 2002, Townsend 2004
Matzel 2007, Ramos 2009
Converging Operations
ASD Symptom Cluster
Stereotypical Behavior
Social Impairments
Communication Deficits
Earlier Interventions
Increase Intervention Effectiveness