

## Personal Statement

I began to develop an interest in research during high school, when I was exposed to research-oriented courses. I came to understand that many of the bases for generating new knowledge or corroborating existing knowledge are the result of research findings. From then on my interest in empirical investigation has grown and, as a result, I have been drawn to seek research experiences and opportunities. My research interests and my academic goals stem from the various experiences I have had, both in the academic realm and outside of it. These experiences have exposed me to the research process, and have made me aware of social conditions in dire need of reform. I want to integrate these two interests by pursuing a doctoral program in cognitive neuroscience focused on brain development, which will enable me to research the mechanisms underlying effective learning at the neural level with the purpose of using this knowledge as a tool to address educational disparities and strive to close the achievement gap.

My research path was markedly influenced by an AmeriCorps program called *Jumpstart*, which I worked for during my first two years of college. The goal of this program is to provide at-risk pre-school children with the necessary tools to succeed academically. I was a member of a team assigned to a Head Start Program in which I worked with a partner child on a one-on-one basis and also interacted with the other children in the classroom I was assigned to. My role was to deliver an intervention designed to aid them in the development of the literacy, social and executive function skills and abilities necessary to succeed in kindergarten. Research findings provided the basis for the techniques used in working with the children, the structure of the sessions the team carried out, and the activities performed in order to achieve the program's goals. This experience exposed me not only to the realities children of underserved populations face, but more importantly to the potential that these children possess and the many things they are capable of achieving when they are provided with the right environment and stimulation. As a result of witnessing first hand the positive impact that applied research can have and realizing its implications, I acquired an interest in being involved in the research on which these kinds of programs are based.

My early interest in research motivated me to seek out ways to be involved in empirical investigation from the onset of my college career. Multiple research experiences have shaped and redefined my research interests, as well as my career goals. As part of the Summer Research Opportunity Program at the University of California, Berkeley I worked with Dr. Alison Gopnik on a project looking at children's perception of their ability to choose to act against their desires. This experience increased my interest in the development of cognitive abilities relevant to learning processes. I have had the opportunity to gain more experience in this area by working as a research assistant in Dr. Sandeep Prasada's Language and Concept Development Lab, where I am involved in numerous projects studying the relationship between language and cognitive processes, particularly categorization. My experience working in this lab has elucidated that studying learning solely from a cognitive approach offers insight into only one aspect of this process. Working at the Educational Cognitive Neuroscience lab as part of the Vanderbilt University Summer Science Academy and at the Dynamic Learning lab during my senior year have granted me the opportunity to look at the neural underpinnings of learning processes using neuroscience techniques. Being able to complement the cognitive approach with a neuroscience

approach through these two research experiences has allowed me to gain a more comprehensive understanding of the research question I want to study, leading to my decision to integrate these two fields and pursue a doctoral program in cognitive neuroscience. Furthermore, these experiences exposed me to the multiple implications that research findings in this area may have, particularly when it comes to gaining a holistic understanding of the process of learning in order to design appropriate education programs and interventions.

Being a NIMH-COR and BP-Endure scholar, government-funded programs designed to provide underrepresented students with research training and opportunities, has had a great impact on my development, both at an academic and personal level, by providing me with the support and resources I needed in order to flourish as a researcher in training. The opportunity to obtain mentorship and professional development, attend scientific conferences, participate in Summer research programs at other institutions, work as a research assistant and receive financial support has proved to be invaluable to my academic advancement. Interacting with other highly motivated students from diverse backgrounds that share my interests and my passion for research has provided a rich environment in which to learn and grow, which has increased my motivation to continue to pursue a career in the field. These programs have also granted me the opportunity to serve as a role model by providing more junior peers with guidance, and thus experience first hand the gratification that this process yields. This experience has sparked the desire to also be involved in the mentoring side of research, especially in order to provide guidance and support for students that might not otherwise obtain it, as my multiple mentors have done for me.

Having the chance to be exposed to the scientific method from different angles and at various stages in my career has provided me with the training and experience necessary to thoroughly comprehend what conducting research entails. Furthermore, it has enabled me to be actively engaged in multiple stages of the research process. This training has not only prepared me to pursue advanced study in science, but has also helped me confirm that this is the path I want to follow to address the questions in which I am most interested and approach the problem I want to contribute to change. I strongly believe that with the privilege of a higher education comes the responsibility to use it to give back to the community, particularly on behalf of those that have not had such opportunities. I want to make my own contribution through science, by using a research-based approach to strive to remedy one of the most pressing issues society faces today: educational disparities. Gaining a better understanding of the way in which environmental factors influence cognitive development at the brain level will allow to identify ways to ensure students timely and adequately develop the neurocognitive abilities they will need to succeed academically and in the future, thus helping to alleviate the detrimental consequences that the achievement gap brings to individuals and to society as a whole. The National Science Foundation Graduate Study fellowship would enable me to achieve the goal of pursuing a doctoral program in order to obtain the training, skills and theoretical background necessary to be able to be part of this endeavor.