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My path to science has not been a traditional one. My first career was as an iron worker. After graduating from high school, rather than applying for colleges, I spent the next two years training to become a welder at my local community college. In order to attend university, I knew that I would need a secure income. While studying in the welding program, I worked with an advocacy group (ACCESS) whose mission it was to provide women, primarily displaced homemakers, with resources for transitioning into “non-traditional” careers (jobs historically dominated by men). I gave presentations and was an active member of panel discussions accompanied by outreach to regional community colleges. Through my participation in this group I met many other tradeswomen and learned a great deal about succeeding despite difficult conditions.

After finishing my degree in welding technology, I got a job in a structural steel fabrication shop in Oakland, California. I was the only woman employed at my shop and at the neighboring crane company, aside from the secretaries, which presented some challenges in my day-to-day work. Despite these challenges, I gained a great deal of satisfaction from translating 2-dimensional drawings into 3-dimensional reality and confidence from the mastery over steel. After a year and a half, I was promoted to swing shift foreman. Despite the satisfaction I took in my work, I was always aware that for me, working as an iron worker was only a temporary position with the goal of eventually supporting my university education. In addition, I became increasingly aware of the toxic fumes and industrial chemicals I was exposed to in the workplace. I realized that it was time for a full transition to university and I quit my blue-collar job. However, my first-hand experience with industrial health and safety issues informs the research that I now pursue.

Blue-collar work is not unusual in my family, nor is academic and intellectual rigor. My father first worked in the coal industry in West Virginia before going on to become a professor of Sociology. My mother was raised to fix her own car and sew her own clothes as well as attend university. From their collective interests I learned about the arts, the value of education, the necessity of being mechanically capable, and responsible environmental stewardship, which I am passing on to my daughters. As a young child, I scavenged at the Berkeley landfill for reusable materials with my father as he was surveying the urban discard stream. I thought it was smelly, but great fun. He considered it to be an untapped source of material with high potential value and subsequently translated that concept into a successful recycling and re-use company. My education in discard (waste) management continued throughout my youth and I believe that responsible recycling and disposal practices are integral to living ethically and providing for future generations.

After leaving my welding career, I pursued a rigorous program of study in the natural sciences. The logical puzzles within mathematics, organic chemistry, and biology excited me and I engaged in activities in which I could communicate my love of the sciences to fellow students. I volunteered in the mathematics lab as a tutor for fellow students at my college. At the same time, I also worked as a private tutor for both college level students and elementary school students, pushing myself to develop a broad pedagogical repertoire of analogies and examples for a range of students. My love of teaching grew through my academic career. After transferring to University of California at Berkeley (UCB) and receiving one of the top semester scores in organic chemistry, I was accepted into a competitive training program to qualify undergraduates to teach the organic chemistry laboratory and discussion sections. We were taught formal pedagogical methods and served as assistants in organic chemistry labs while enrolled in the program. I successfully completed the training but was unable to apply for a

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teaching position after I became pregnant and gave birth to my second child. Despite this, I gained excellent training in teaching science to undergraduates and I brought these lessons to my graduate teaching experiences. The four semesters I served as a graduate student instructor at UCB while studying for my master's degree did not cover organic chemistry but they required my training in the Socratic Method, understanding different learning types, an interdisciplinary approach, and the dedication I developed throughout all of my teaching experiences. The results of my teaching experiences, spanning more than 10 years, have convinced me that bringing my research and results to citizens and future scientists is critical to my personal satisfaction, whether it takes the form of individual mentoring or lecturing to a roomful of students.

In addition to tutoring and teaching, I have always had a desire for public service. While an undergraduate at UCB, I became increasingly involved with the early childhood education program (ECEP) on campus and served as chair of the parent advisory committee, successfully advocating for new safety measures and an updated parent-school communication system. Following this, I served for three years on the Student Health Advisory Committee as a student parent representative. Closer to home, I have volunteered with my daughters' schools and activities since they were toddlers. Not only does it provide them with the reassurance that their parent cares and is active in their lives, it also demonstrates to them that a woman can be both a scholar and a mother actively involved in her community. Everything that I do is an example to my children and I am rewarded each time my eight-year-old says that she is going to grow up to "do research."

Lastly, I am driven by a desire to affect positive change in the world my girls have only begun to know. A few years ago I attended a lecture on e-waste recycling in Guiyu, China and was shocked at the environmental conditions the residents were exposed to: there was no longer a source of local drinking water and many images showed children playing among the piles of monitors, wires, and circuit boards. Today, my daughters attend a school that participates in an e-waste recycling program as a fundraiser. When my daughters ask me about the ink cartridges or cell phones that are dropped in the office box, what can I tell them? It is a simple question with an extremely complex answer. Currently, all I can say is that it might be the right thing to do. As their generation grows and electronic devices become increasingly ubiquitous, they stand to inherit a "tsunami" of e-waste<sup>1</sup>.

Not only have I excelled in my academic studies, I have also had enough life experience to know that choosing a career as a research scientist and educator is the right path for me. My nontraditional background, ranging from a mother of two children with experience in industrial labor, molecular biology, and environmental planning, uniquely qualifies me to pursue this proposed research project. Additionally, I am adept at leveraging the intellectual and logistical support available at UC Berkeley and the community at-large, as described in my research plan. My doctoral program, in the Department of Environmental Science, Policy and Management will provide me with the additional research training to complete my proposed investigation through rigorous methods and the theoretical background to complement my technical and reasoning skills.

1. Johnson, J. in Chemical & Engineering News 32-33 (2008).