

The Scientific Careers Research and Development Group – Integrating theory, research and application to understand and promote scientific careers

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One of the best parts about research is you never really know where it is going to take you and what you might discover along the way. Our interest and research into interventions to promote diversity began in the late 1990s with a seemingly simple question – How do we predict which college students are most likely to persist into PhD and MD/PhD training so that the limited opportunities available through an undergraduate summer research program could be targeted to those who need the experience most? Successfully answering our initial question laid the methodological and scientific foundations for what has grown into a multidisciplinary group of 13 people, including eight social science and education researchers, two laboratory scientists, a communications specialist and two project coordinators. Without really planning where we were headed, we have arrived at a point where we have an extraordinary opportunity to study the development of young scientists, examine the roles of gender, race and ethnicity on career decisions, refine analytic frames of reference for studying these process, and experiment with applying what we are learning to real life research training. We decided to ‘tell our story’ to aid others in their efforts to build research teams that bring together natural and social scientists focused on interventions research. By describing our ‘basic’ research and ‘translational’ projects, we hope to stimulate others to recognize additional research questions to pursue; describe the experiences that have led us to where we are; and indicate our willingness to share with others the expertise we have been fortunate to assemble.

Our presentation will provide a summary of our current projects and the types of expertise we have available to assist others in this growing field. In order from most theoretical to most applied, our current projects include: 1) the conceptual integration of multiple social science theories to enable more thorough analysis of research data on the development and career choices of young biomedical scientists; 2) a deconstruction and formulation of social science theories into simplified language and concepts so that natural scientists can use them to help guide interventions and research training; 3) a longitudinal study of the development and career decisions of ~400 biomedical PhD students using annual in-depth interviews and qualitative analysis, with a major emphasis on differential experiences of women and underrepresented minorities; 4) an examination of the reasons students drop out of the science PhD pipeline between junior and senior years; 5) refinement of an academic and professional development sequence for the first two years of the PhD, based on social science theories and informed by our basic research; 6) development of ‘next generation’ teaching tools to supplement classical mentoring and assist development of young scientists, with the goal to mitigate some of the subtle but very real challenges faced by young scientists of color; 7) development and testing of coaching-based supplements for young faculty to decrease time demands on mentors and improve the quality of faculty development efforts; 8) a truly novel, randomized controlled trial to determine if it is possible to use sophisticated coaches to proactively guide PhD students toward academic careers, with an emphasis on an ultimate goal of increased faculty diversity.

We have elected to focus the majority of our efforts on the types of research questions and translational applications that can only be effectively studied with qualitative methods, especially in-depth interviews. We are available as a resource to assist others interested in research questions and programs similar to ours through informal conversations, meetings, or collaborations.

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