

Abstract

The historical approaches to training biomedical scientists have been very successful at creating a talented, creative, community of scientists, but have failed to produce meaningful improvement in the participation of individuals from underrepresented racial and ethnic minority (URM) groups in this community. The thesis of this proposal is that the absence of change is an unintended consequence of the fundamental culture and practices of biomedical research and research training. The culture and practices can be well modeled and interpreted drawing on several well-established social science theories, including: 1) *Communities of Practice*, which describes how individuals with common interests and goals engage to achieve those goals, especially the processes by which new individuals enter the group, gradually acquire (or fail to acquire) the informal knowledge and practices of the group, and become full participants; 2) *Social Cognitive Career Theory*, through which its variables of self-efficacy, outcome expectations, personal goals, and contextual supports/barriers provide insights into forces guiding individual development and career choices; 3) a comparison of the strengths and inherent limitations of *mentoring* (as practiced in biomedical research training) versus *coaching* (as practiced in the development of athletic talents). From these theoretical frameworks, an experiment is proposed to test the *hypothesis* that: a hybrid model employing sophisticated coaches to complement what scientific mentors typically provide can mitigate the unconscious processes that significantly impair professional advancement of young URM scientists. The experiment would be a randomized controlled trial of a coaching-based model for a diverse cohort of 160 PhD students who have a strong desire to pursue academic careers. A community of these individuals would be created from around the U.S. and sustained through an annual professional development sequence, periodic electronic meetings throughout the years, and a mediated social network to sustain professional development and progress toward an academic career.

Narrative

To continue and enhance the prominence of the U.S. in biomedical research, we must find ways to identify, develop and employ the talents of a broader spectrum of our population. The proposed model represents a substantial shift in thinking and approach, and challenges conventional assumptions and practices, but if successful could finally achieve a breakthrough in the efforts to diversifying the biomedical workforce. It also could be applied to many disciplines and talent pools because it is a generalized model that more systematically approaches development of human talents starting from well-developed social science principles.