

**FROM BATTLEFIELD TO CLASSROOM:
DESIGNING PATHWAYS TO ENGINEERING FOR AMERICAN GIs**

One critical challenge of war is to resettle veterans of the armed forces into productive civilian roles and professions. Such an obligation repays soldiers for their service and significant sacrifice. The Post-9/11 GI Bill, whose benefits begin 1 August 2009, offers the most comprehensive education benefits package since the original GI Bill of 1944, providing a range of opportunities and services for veterans and dependents. It is believed that many GIs will emerge from their military experiences with skill sets pitched toward technical fields and will even favor engineering education. The opportunity exists for this group to be instrumental in our nation's now urgent need for future scientists and engineers. In joining these trends at this critical juncture in time, it is imperative that planning and implementation for the influx of GIs into academia hinge upon projections about GIs' goals, aspirations and likely behavior that are informed by a sound evidentiary base. This is the purpose of the proposed project.

Intellectual Merit: Through direct information sources (surveys and focus groups), and public record documents, the proposed research fills a gap in knowledge about the projected enrollment and higher education intentions and aspirations of Post-9/11 GI bill-eligible veterans pursuing engineering degree programs. Using a mixed method approach for data collection and analysis, we prioritize the following:

(1.) Projecting the enrollment of benefits-eligible GIs in science and engineering degree programs

- Identify key factors determining whether GIs are likely to pursue engineering
- Develop statistical models using key factors to predict numbers of GIs pursuing engineering
- Determine broad factors for guiding future projection and predictive research
- Develop framework for NSF/federal agencies for budgets and programs in future proposal requests

(2) Develop, design, deploy, and analyze results from transportable survey tools and multivariate qualitative focus groups composed of diverse and segmented target sub-groups

- Gather information sources needed to learn more about the GI technical talent pool
- Develop assessment tools for profiling GI engineering aspirants for stimulating a pipeline of veterans
- Develop criteria to design and improve methods of attraction for benefits-eligible GIs
- Identify factors and variables that diverse veterans use to define their own aspirations

(3) Develop innovative concepts for guiding custom education programming and supportive industry and government partnerships for professional development

- Develop a knowledge base of support resources that GIs report as needed or helpful for enhancing recruitment, transition, persistence, degree completion, professional development, and academic support.
- Develop strategies to leverage the diversity of veterans for the engineering pipeline, including redressing barriers and challenges.

Broader Impacts: It is anticipated that NSF, other agencies, and institutions will apply these research results in planning for the influx of veterans into higher education. This project will provide data to inform future program solicitations and scale programmatic content to need and enable stakeholders to perform the following critical activities:

- Maximize enrollment and retention by learning about GI motivations to pursue technical education
- Engage industry partners as potential employers, valuable resources for veterans' career development, and partners in academic institutional investment to support new educational programs
- Track educational programs veterans enter, critical to evaluating the efficacy of those programs
- Map the pipeline from the battlefield to postsecondary education, with sensitivity to traditionally underrepresented groups in science and engineering
- Extend the concept of "health" beyond well-researched physical and mental needs of GIs to address educational and professional health
- Relate the acute recovery needs of the U.S. economy with well-trained, highly committed human assets within the armed forces, including their potential catalyzing role in the emergent movement within academe toward public engagement.