

The Many Quiet Tensions: Perceptions of the Broader Impacts Criterion held by NSF Engineering CAREER Award Holders at Very High Research Institution of Higher Education

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Research questions:

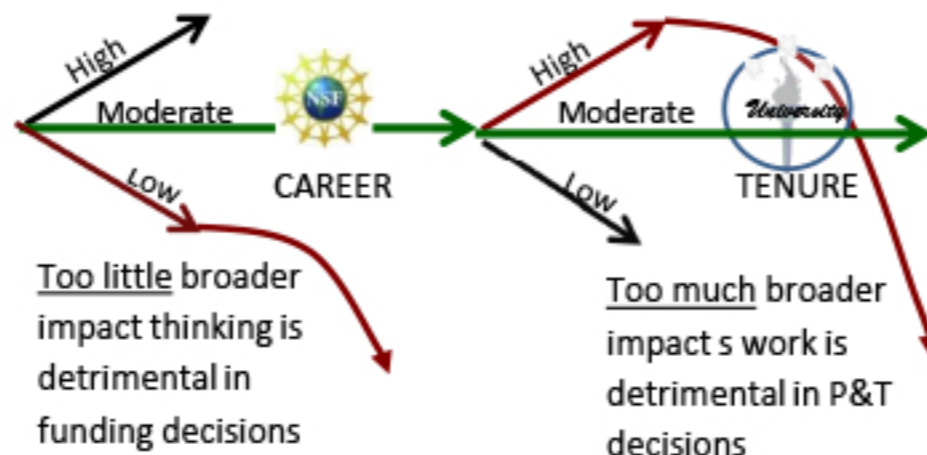
1. What perceptions of the Broader Impacts merit review criterion are held by engineering faculty CAREER awardees at four research intensive universities?
2. How have the CAREER awardees responded to the broader impact requirement? What specific activities or deliverables do they design and implement in response to the broader impacts requirement?
3. How has the NSF Broader Impacts Criterion changed the role of faculty at colleges of engineering at Very High Research universities?
4. Would CAREER grant holders continue to pursue activities aligned with broader impacts goals if NSF did not maintain the requirement?

Semi-structured interview method:

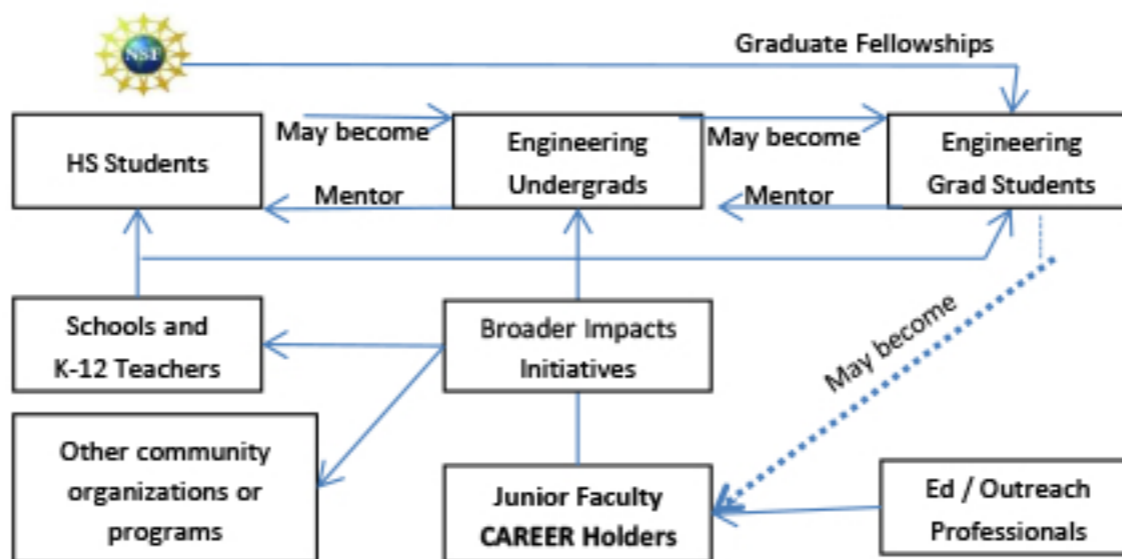
- Fall 2013
- Four institutions; 2 public, 2 private
- 46 participants: CAREER awardees, broader impacts support personnel, people currently or formerly affiliated with NSF

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Optimizing Broader Impacts Efforts: Faculty researchers seek to define the level of broader impacts that will meet NSF requirements while leaving enough time to satisfy university promotion & tenure expectations.



The Mentoring Loop: Faculty with a grad school mentor who had a CAREER award or other major NSF funding, or those who had an NSF graduate fellowship were likely to seek out broader impacts opportunities as soon as they began their academic position. They create a culture in their research group that promotes involvement in broader impacts initiatives that motivate younger learners to continue in the career field. If the loop is allowed to run long enough, attitudes in the academy will be changed as more faculty members embrace broader impacts thinking.



Findings include:

- CAREER award holders agree with the intent of broader impacts
- Junior faculty members experience tensions throughout the process of broader impacts strategy design, implementation and evaluation
- Messages from senior faculty, NSF program officers and broader impacts support personnel often conflict
- The broader impacts criterion encouraged many faculty members to explore effective methods of teaching about their area of specialization

Questions asked by CAREER holders:

- Should broader impacts plans extend existing validated projects or introduce new initiatives?
- Why are there inconsistencies across panel members' review comments about broader impacts plans?
- How can successful broader impacts initiatives be sustained after the CAREER award expires?
- Do results matter? Why doesn't NSF have clear evaluation criteria to assess the effect of broader impacts initiatives?

Suggested additional work includes:

1. Expand to additional universities.
2. Document ongoing implementation of broader impacts initiatives after the CAREER award expires
3. Analyze current practices and attitudes of former CAREER holders
4. Study senior faculty perceptions
5. Document university funding mechanisms for support of broader impacts work