On the 2015 ATE survey, 65 of 230 principal investigators (28%) reported spending some portion of their annual budgets on research. Six of these projects were funded as targeted research. Among the other 59 projects, expenditures on research ranged from 1% to 65% with a median of 14%. With just six targeted research projects and less than a third of all ATE grantees engaging in research, there is immense opportunity within the ATE program to expand research on technician education.

The full report of 2015 ATE survey findings, along with data snapshots and downloadable graphics, is available from www.evalu-ate.org/annual_survey/.
How can PIs demonstrate that their projects have “advanced knowledge”?

NSF’s Intellectual Merit criterion is about advancing knowledge and understanding within a given field or across fields. Publication in peer-reviewed journals provides strong evidence of the Intellectual Merit of completed work. It is an indication that the information generated by a project is important and novel. The peer review process ensures that articles meet a journal’s standard of quality, as determined by a panel of reviewers who are subject matter experts.

In addition, publishing in an academic journal is the best way of ensuring that the new knowledge you have generated is available to others, becomes part of a shared scientific knowledge base, and is sustained over time. Websites and digital libraries tend to come and go with staff and funding changes. Journals are archived by libraries worldwide and, importantly, indexed to enable searches using standard search terms and logic. Even if a journal is discontinued, its articles remain available through libraries. Conference presentations are important dissemination vehicles, but don’t have the staying power of publishing. Some conferences publish presented papers in conference proceedings documents, which helps with long-term accessibility of information presented at these events.

The peer review process that journals employ to determine if they should publish a given manuscript is essentially an evaluative process. A small group of reviewers assesses the manuscript against criteria established for the journal. If the manuscript is accepted for publication, it met the specified quality threshold. Therefore, it is not necessary for the quality of published articles produced by ATE projects to be separately evaluated as part of the project’s external evaluation. However, it may be worthwhile to investigate the influence of published works, such as through citation analysis (i.e., determination of the impact of a published article based on the number of times it has been cited—to learn more, see http://bit.ly/cit-an).

Journals focused on two-year colleges and technical education are good outlets for ATE-related publications. Examples include Community College Enterprise, Community College Research Journal, Community College Review, Journal of Applied Research in the Community College, New Directions for Community Colleges, Career and Technical Education Research, Journal of Career and Technical Education, and Journal of Education and Work. (For more options, see the list of journals maintained by the Center of Education and Work (CEW) at the University of Wisconsin at http://bit.ly/cew-journals.)

NSF’s Intellectual Merit criterion is about contributing to collective knowledge. For example, if a project develops embedded math modules for inclusion in an electrical engineering e-book, students may improve their understanding of math concepts and how they relate to a technical task—and that is certainly important given the goals of the ATE program. However, if the project does not share what was learned about developing, implementing, and evaluating such modules and present evidence of their effectiveness so that others may learn from and build on those advances, the project hasn’t advanced disciplinary knowledge and understanding.

If you are interested in preparing a journal manuscript to disseminate knowledge generated by your project, first look at the type of articles that are being published in your field (check out CEW’s list of journals referenced above). You will get an idea of what is involved and how the articles are typically structured. Publishing can become an important part of a PI’s professional development, as well as a project’s overall effort to disseminate results and advance knowledge.
Communicating Results from Prior NSF Support

ATE proposal season is many months away in early October, but if you are submitting for new funding this year, now is the time to reflect on your project’s achievements and make sure you will be able to write a compelling account of your current or past project’s results as they relate to the NSF review criteria of Intellectual Merit and Broader Impacts. A section titled Results from Prior NSF Support is required whenever a proposal PI or co-PI has received previous grants from NSF in the past five years. A proposal may be returned without review if it does not use the specific headings of “Intellectual Merit” and “Broader Impacts” when presenting results from prior support.

Given that these specific headings are required, you should have something to say about your project’s achievements in these distinct areas. It is OK for some projects to emphasize one area over another (Intellectual Merit or Broader Impacts), but grantees should be able to demonstrate value in both areas. Descriptions of achievements should be supported with evidence. Bold statements about a proposed project’s potential broader impacts, for example, will be more convincing to reviewers if the proposer can describe tangible benefits of previously funded work.

To help with this aspect of proposal development, EvalUATE has created a Results from Prior NSF Support Checklist (see http://bit.ly/prior-check). This one-page checklist lists the NSF requirements for this section of a proposal, as well as our additional suggestions for what to include and how.


The task of identifying and collecting evidence of results from prior support should not wait until proposal writing time. It should be embedded in a project’s ongoing evaluation.

PATHTECH
Successful Academic & Employment Pathways in Advanced Technologies

Will Tyson is PI for Path Tech, an ATE targeted research project. He is an associate professor of sociology at the University of South Florida. Learn more about his project at www.sociology.usf.edu/pathtech/.

Q What advice do you have for PIs who want to pursue targeted research in technician education?
A The Targeted Research on Technician Education strand of ATE is an ideal avenue for current ATE PIs looking to fund small projects to learn more about student outcomes resulting from prior activities. The best advice I have is to seek out scholars with backgrounds in social science and education, preferably with NSF experience, to partner with on a targeted research submission.

Q You’ve published numerous articles on your research. What is your sense of what journal editors and reviewers are looking for when it comes to research on technician education?
A I’m not sure journal editors and reviewers are actually looking for research on technician education. This is both a challenge and an opportunity. Most STEM education research generally ignores the “T” and focuses on traditional pathways to science, engineering, and mathematics degrees and careers. I think people know “good tech jobs” exist, but generally lack knowledge about the educational pathways to those jobs and the rich life stories of community college students in technician education programs.

Q How do you see ATE research fitting within the NSF-IES Common Guidelines for Education Research and Development?
A I think there are some challenges to fitting ATE research into the Common Guidelines. There are several research types and ATE researchers have to be careful to make sure the type they choose is the best fit for their research questions. The Guidelines are a good start for new investigators, but senior investigators should continue to build upon their work and use prior research to justify their new research ideas.

Q Based on your experience as an NSF proposer and reviewer, what are some common mistakes when it comes to targeted research proposals?
A Everyone should pay close attention to the goals of the Targeted Research on Technician Education track as outlined in the ATE program solicitation, which are to simulate and support research on technician education and build the partnership capacity between 2- and 4-year institutions to design and conduct research and development projects. All projects should focus on studying education through partnerships between 2- and 4-year institutions. In my experience, targeted research proposals tend to be led by 2-year college faculty or scholars from 4-year institutions or private research institutes. The 2-year personnel tend to lack the capacity to conduct targeted research due to lack of experience or personnel, as evidenced by their biosketches. On the other hand, 4-year personnel tend to lack familiarity with 2-year colleges and seek to use students as “guinea pigs.” Proposals often do not show that the scholar will be able to recruit student participants. Targeted research proposals should show clear evidence that 2- and 4-year institutions or private research institutes are going to work collaboratively.
Upcoming Events

Small Project Evaluation: Principles and Practices
Webinar | March 23, 2016 | 1-2:30 p.m. EDT

An effective small project evaluation requires a clear-cut and feasible project plan, an evaluation plan that matches the project's scope and purpose, and a project team and external evaluator who are willing and able to share responsibility for implementing the evaluation. In this webinar, we will review foundational principles of small project evaluation and discuss strategies for putting them into practice for a high-quality, economical, and useful evaluation of a small project.

Webinar participants will be able to

1. Create or refine a project logic model that accurately represents a project's activities and intended outcomes as a foundation for an evaluation plan.

2. Develop evaluation questions that are appropriate for a small project.

3. Identify project process and outcome indicators for answering the evaluation questions.

4. Plan for how to use evaluation results.

Register at www.evalu-ate.org/webinars