Orientation to ATE Survey 2012

What you need to know to get good information into and out of the survey

January 18, 2012

This material is based upon work supported by the National Science Foundation under grant number 0802245. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the presenters and do not necessarily reflect the views of the National Science Foundation.
Introductions

Stephanie Evergreen
Lori Wingate
Jason Burkhardt
David Campbell
Dan Hull

Evaluate@W Western Michigan University
NSF
OP-TEC

Lara Smith
Maricopa Community Colleges
Orientation to ATE Survey 2012
What you need to know to get good information into and out of the survey

by Jason Berkhardt, David Campbell, Stephanie Evergreen, Dan Hall, and Lori Wingate
January 16, 2012

Webinar Handout

ATE Survey Overview
Although the actual survey is conducted online, you may preview a PDF version of the survey instrument at www.evalu ate-ate.org/events/ate_survey_orientation_webinar/.

Changes to the survey for 2012 include a helpful reduction in length, removal of items about technology-related assessment, use of education committees, detailed assessment practices, and the general interest statement. The Special Topics section now includes some student comments related to the ATE survey, including student feedback and the ATE survey. However, the specific topics that are included in the survey will be determined based on the findings of the survey.

Using Project Data for Multiple Purposes
Typically, ATE projects need to collect and report data for the following purposes. There is some cross-over overlap in the nature of information needed for each purpose, so it is a good idea to streamline data collection such that information is readily accessible when needed.

Reporting ATE Survey

Annual ATE survey
An annual report submitted to NSF through Narrative

Expected information
Nature of goals, objectives, outcomes, evaluation of ATE support, students involved and their contributions, ATE results, and student feedback on the quality of the survey. This is a good way to review the reporting categories and the ATE survey and provide feedback on the project evaluation process and the project's impact on student outcomes.

OP-TEC's Use of Research and Evaluation Data
To learn more about OP-TEC (www.op-tec.org) and the use of evaluation, see www.evalu ate-ate.org. In the Resources section, you will find the links to their Industry Needs Assessment survey and findings. For information on the evaluation materials, you can visit www.evalu ate-ate.org.
Objectives

By the end of this webinar, you will...

1. Understand how and why the ATE annual survey is conducted
2. Have a clear understanding of the survey questions and how to answer them
3. Know how the data you provide for the survey can be used for other purposes.
Survey
Overview
Lori Wingate
What

- Web-based survey of ATE PIs
- Conducted annually since 2000
- Originally part of ATE program evaluation, now serves a monitoring function

Survey ≠ Evaluation
What

Raise your hand if you’ve participated in the ATE annual survey before
What

1/3 shorter!

2011

7 sections
- 27 pages
- 5,600 words

2012

5 sections
- 16 pages
- 3,700 words

QUESTIONS REMOVED:
- Workforce needs assessment
- Advisory committees
- Detailed evaluation practices
- Detailed student outcomes
What

1/3 shorter!

7 sections - 27 pages - 5,600 words

5 sections - 16 pages - 3,700 words

1. Grant Characteristics and Practices
2. Materials Development
3. Professional Development
4. Program Improvement
5. Special Topics
2012 Special Topics questions:
- Interest in resources for entrepreneurial education
- Opinions about college advising
- Tools and strategies for tracking graduates
- Efforts to recruit/retain students from underrepresented groups
When

Survey launches

- Feb 15
- Feb 22
- Feb 29

1st and 2nd reminders sent by EvaluATE

Survey closes

- Mar 7
- Mar 14

3rd reminder sent by NSF
Who

- Sent to all ATE PIs, except those for planning grants (N=\sim250)
- PIs may delegate survey to others
Who

1. Grant Characteristics and Practices
2. Materials Development
3. Professional Development
4. Program Improvement
5. Special Topics
1. Grant Characteristics and Practices
2. Materials Development
3. Professional Development
4. Program Improvement
5. Special Topics
Who

1. Grant Characteristics and Practices
2. Materials Development
3. Professional Development
4. Program Improvement
5. Special Topics

Completed by grantees that spent at least 30% or at least $100,000 on these activities

(New grantees may skip these sections)
How

Copy-and-paste login information
How

Start early, save often
Who

1. Grant Characteristics and Practices
2. Materials Development
3. Professional Development
4. Program Improvement
5. Special Topics

Entire survey or certain sections may be delegated to another for completion
Welcome, Lori Wingate

We strongly recommend that you read through the survey FAQs before beginning the survey.

Thank you for signing in to take part in the NSF ATE Survey 2011!

Your PI survey responsibilities include:

- Completing the survey
- Reassigning sections to others to answer, if desired
- Closing the survey

If you choose to delegate your PI survey responsibilities to a different PI, you can assign sections, close the survey, or answer questions (unless the section back to you).

You will still be able to view survey responses for your grant.

Select to have someone else complete the entire survey.
Welcome, Lori Wingate

We strongly recommend that you read through the survey FAQs before beginning the survey.

Thank you for signing in to take part in the NSF ATE Survey 2011!

Your PI survey responsibilities include:

- Completing the survey
- Reassigning sections to others to answer, if desired
- Closing the survey

If you choose to delegate your PI survey responsibilities to a different PI, you can assign sections, close the survey, or answer questions (unless the person to whom you delegate the sections later assigns the section back to you).

You will still be able to view survey responses for your grant.

Select to view or answer the questions yourself OR to delegate certain sections to someone else.
Delegation

Section 1: Grantee Characteristics
Section 2: Materials Development
Section 3: Professional Development
Section 4: Program Improvement
Section 5: Special Topics
Who

Delegation

Section 1: Grantee Characteristics
Section 2: Materials Development
Section 3: Professional Development
Section 4: Program Improvement
Section 5: Special Topics
Why

Intended to provide a high-level view of the program, not capture all the details.
Why

Intended to provide a **high-level view** of the program, not capture all the details.
Why

Intended to provide a high-level view of the program, not capture all the details.
Why

Survey ➔

Annual Report and Project Evaluation Reports ➔
Can you just use the information we provided in our annual (FastLane) report?

FastLane Annual Report
- All NSF grantees
- PDF reports

Evaluate Annual Survey
- ATE-specific
- Database of quantitative and qualitative data
Discussion

David Campbell
Definitions

Lori Wingate
Collaboration

“Collaboration is a relationship with another institution, business, or group that provides money or other support to your project or center. Collaborators are not funded by the grant.”
Collaboration

For each type of collaborating organization listed below, report the number of different organizations you collaborated with in 2011.

_______ Business/industry
_______ Within your host institution
_______ Other education institutions
_______ Public agencies
_______ Other ATE projects/centers
_______ Other (specify):
Examples

- Someone serving on an advisory board whose time is compensated by his/her employer
- Donation of time to give presentation/workshop
- Donation of space or materials

- One-time provision of advice
- Paid consulting services
- Use of space or materials regularly available to grant staff
Calculating value of collaboration

A person’s time:

Estimated daily rate

$\times$

Number of days contributed

= Value of collaboration
Calculating value of collaboration

**Equipment:**
Cost of purchasing comparable equipment = Value of collaboration
This section of the survey focuses strictly on materials developed for national dissemination to serve instructional purposes....
For all materials you reported above, indicate the number directed at each type of audience.

<table>
<thead>
<tr>
<th>Target Audience</th>
<th>Type of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course</td>
</tr>
<tr>
<td>Secondary school</td>
<td></td>
</tr>
<tr>
<td>2-year college</td>
<td></td>
</tr>
<tr>
<td>4-year college</td>
<td></td>
</tr>
<tr>
<td>Business/industry training or education program</td>
<td></td>
</tr>
</tbody>
</table>

Stand-alone collection of instructional content and activities to achieve desired educational outcomes
Materials

For all materials you reported above, indicate the number directed at each type of audience.

<table>
<thead>
<tr>
<th>Target Audience</th>
<th>Type of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course</td>
</tr>
<tr>
<td>Secondary school</td>
<td></td>
</tr>
<tr>
<td>2-year college</td>
<td></td>
</tr>
<tr>
<td>4-year college</td>
<td></td>
</tr>
<tr>
<td>Business/industry training or education program</td>
<td></td>
</tr>
</tbody>
</table>

Self-contained collection of content and activities designed to achieve a set of specific objectives
For all materials you reported above, indicate the number directed at each type of audience.

<table>
<thead>
<tr>
<th>Target Audience</th>
<th>Type of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course</td>
</tr>
<tr>
<td>Secondary school</td>
<td></td>
</tr>
<tr>
<td>2-year college</td>
<td></td>
</tr>
<tr>
<td>4-year college</td>
<td></td>
</tr>
<tr>
<td>Business/industry training or education program</td>
<td></td>
</tr>
</tbody>
</table>

An instructional exercise designed to achieve a discrete learning outcome or a test to measure achievement or progress toward that outcome.
Materials

Examples

- Course curriculum
- Lab manuals
- Multimedia resources
- Problem-based scenarios
- Simulation applications

- Newsletters
- Brochures
- Advertisements
- Posters
- Conference giveaways
... professional development provided to secondary school teachers, college faculty, and preservice teachers to enhance their disciplinary capabilities, teaching skills, vitality, and understanding of current technologies and practices in areas that directly impact technician education.
Professional Development

→ professional development for educators to improve their teaching

Lori
Report the number of participants in your 2011 professional development activities that are associated with each education level.

<table>
<thead>
<tr>
<th>Professional Development Activity</th>
<th>Total Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Secondary Level</td>
</tr>
<tr>
<td>Short presentations to raise awareness</td>
<td></td>
</tr>
<tr>
<td>Instructional activities of less than a day</td>
<td></td>
</tr>
<tr>
<td>Instructional activities of at least one day but less than one week</td>
<td></td>
</tr>
<tr>
<td>Instructional activities that last from one to several weeks</td>
<td></td>
</tr>
<tr>
<td>A long-term periodic instructional activity</td>
<td></td>
</tr>
</tbody>
</table>
Professional Development

Examples

- Workshops
- Summer institutes
- Coaching/mentoring
- Industry internships

- Conference booth
- Materials
- Hits on a website/views of a video
Students and Programs

"...development or improvement of technician education programs for secondary students, college students, or persons employed in technician positions in business or industry."
Program: A sequence of classes, laboratories, and/or work-based experiences that lead students to a degree, certification, or occupational competency point. “
## Students and Programs

### Education Level of Participating Students

<table>
<thead>
<tr>
<th>Education Level of Participating Students</th>
<th>Contract Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary</td>
<td>Associate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total number of locations where the ATE-supported programs were offered</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

| Total number of individual students who took at least 1 course in 1 of your ATE-supported programs (if a student took more than 1 course, count that person only once) |   |   |   |
Students and Programs

Students to count:
Anyone who enrolled in a course offered through a program that was the focus of a ATE-funded program improvement effort
How accurate are your student numbers?

Use the marker tool to show where you are on the continuum

Data Accuracy Continuum

Wild Guess

100% Precise Measurement

Wild

Guess
## KVCC Wind Energy Technology Certificate

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 110</td>
<td>PC Operating Systems</td>
</tr>
<tr>
<td>DRFT 105</td>
<td>Blueprint Reading</td>
</tr>
<tr>
<td>DRFT 110</td>
<td>Analytical Apps Tech Careers I</td>
</tr>
<tr>
<td>DRFT 112</td>
<td>Analytical Apps Tech Career II</td>
</tr>
<tr>
<td>ELT 102</td>
<td>Applied Electricity</td>
</tr>
<tr>
<td>ELT 120</td>
<td>Electrical Machines</td>
</tr>
<tr>
<td>ELT 122</td>
<td>Wind Turbine Ops/Maint/Repair</td>
</tr>
<tr>
<td>ELT 126</td>
<td>Power Generation &amp; Dist</td>
</tr>
<tr>
<td>ELT 222</td>
<td>Programmable Control</td>
</tr>
<tr>
<td>ELT 228</td>
<td>Adv Program Control &amp; Data Acq</td>
</tr>
<tr>
<td>HVAC 104</td>
<td>Intro to Renewable Energy</td>
</tr>
<tr>
<td>MSM 110</td>
<td>Safety for Alt Energy Tech</td>
</tr>
<tr>
<td>MSM 120</td>
<td>Basic Fluid Power</td>
</tr>
<tr>
<td>MSM 250</td>
<td>Wind Turbine Mechanical System</td>
</tr>
</tbody>
</table>
ATE Reporting Puzzle

Report basic information on grant productivity and reach.

Annual Survey

Annual FastLane Report

Project-Level Evaluation

Results from Prior NSF Support

Describe in details your project’s participants, collaborators, activities, results, and contributions.

Show what you’ve accomplished with NSF funding in the past.
Data collection timelines

- Annual Survey
- Annual FastLane Report
- Project-Level Evaluation
- Results from Prior NSF Support for new proposal
Data collection timelines

- Annual FastLane Report
- Annual Survey
- Results from Prior NSF Support for new proposal

Data collection timed with project activities
Large, multisite programs create issues for data managers, since the site personnel are often responsible for data collection.

Coordination of data collection efforts is crucial to good data management.

Collecting data at the point of service is a great strategy.
Retrieval

Integrity of initial data collection and storage

Information Gained

Retrieval Time

Efficiency

Inefficiency

Information Gained

Integrity of initial data collection and storage
Data collection and analysis

Fidelity

Assumes an equal amount of time spent collecting and managing the data

Small spectrum of highly precise data

Balance between precision and volume

Wide spectrum of less precise data
Turning raw data into information

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>ATE Role</th>
<th>Grant 1</th>
<th>Grant 2</th>
<th>Webinars</th>
<th>Workshop</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Q</td>
<td>Public</td>
<td>PI</td>
<td>0812345</td>
<td>0911132</td>
<td>x</td>
<td>A</td>
</tr>
<tr>
<td>Jim</td>
<td>Atepi</td>
<td>Evaluator</td>
<td>1078655</td>
<td>0711234</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Martha</td>
<td>Participant</td>
<td>PI</td>
<td>1009919</td>
<td>0230686</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Unique Individual Attendance at Webinar/Workshop

- Attended Either: 526
- Attended Webinar: 402
- Attended Workshop: 188
Analyze and Synthesize!

Webinar/Workshop Attendance - Evaluators & PIs

Event attendance by role

Master list totals by role
What have we learned?

Master list totals by role

- **PI**: 35%
- **Evaluator**: 19%
- **Eval, PI**: 1%
- **Project Staff**: 3%
- **College Admin**: 2%
- **Other**: 2%
- **Co-PI**: 0.4%
- **Unknown**: 37%
What have we learned?

Event attendance by role

ListServ | Newsletter | Webinar | Workshop | Total N
---|---|---|---|---
PI | Evaluator

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
What have we learned?

Webinar/Workshop Attendance

<table>
<thead>
<tr>
<th></th>
<th>PI</th>
<th>Evaluator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Webinar</td>
<td>20%</td>
<td>39%</td>
</tr>
<tr>
<td>Workshop</td>
<td>19%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Jason
What have we learned?

Role attendance at either webinar or workshop

- PI: 31%
- Evaluator: 50%

Jason
A little less than one quarter of all students in ATE-supported programs are female. By discipline, the percentage of female students ranges from 9 to 65 percent.

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Female Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology teacher preparation</td>
<td>150</td>
<td>24%</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>110</td>
<td>24%</td>
</tr>
<tr>
<td>Energy use (or conservation)</td>
<td>140</td>
<td>26%</td>
</tr>
<tr>
<td>Agricultural and natural resources</td>
<td>80</td>
<td>33%</td>
</tr>
<tr>
<td>Earth science</td>
<td>50</td>
<td>33%</td>
</tr>
<tr>
<td>Learning</td>
<td>120</td>
<td>24%</td>
</tr>
<tr>
<td>Recruitment into specific programs</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>Geospatial technologies</td>
<td>150</td>
<td>24%</td>
</tr>
<tr>
<td>Energy production</td>
<td>120</td>
<td>24%</td>
</tr>
<tr>
<td>Electronics and controls</td>
<td>160</td>
<td>20%</td>
</tr>
<tr>
<td>Information and communications technologies</td>
<td>200</td>
<td>15%</td>
</tr>
<tr>
<td>Other</td>
<td>150</td>
<td>23%</td>
</tr>
<tr>
<td>Security, information assurance, and defense</td>
<td>30</td>
<td>10%</td>
</tr>
<tr>
<td>Chemical processes</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>Optics</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>General manufacturing</td>
<td>150</td>
<td>20%</td>
</tr>
<tr>
<td>Recruitment from underrepresented groups</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>Micro and nanotechnologies</td>
<td>50</td>
<td>10%</td>
</tr>
<tr>
<td>Automotive manufacturing</td>
<td>50</td>
<td>10%</td>
</tr>
</tbody>
</table>

Percentage of Female Students in ATE-Funded Programs

Percentage of Respondents (N=111)

* Numbers are rounded to the nearest 10.
* Respondents in “Other” primarily were involved in multiple disciplines. A total of 380 students across two grants are counted in “Other” because no discipline was provided.
* Some disciplines (aerospace manufacturing, marine technologies, space technologies, evaluation, research, and one course) did not have any student numbers reported and are off the chart.
Benchmarking

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>15,100</td>
<td>24%</td>
</tr>
<tr>
<td>Technology teacher preparation</td>
<td>160</td>
<td>10%</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>540</td>
<td>36%</td>
</tr>
<tr>
<td>Energy use (or conservation)</td>
<td>290</td>
<td>19%</td>
</tr>
<tr>
<td>Agricultural and natural resources</td>
<td>580</td>
<td>38%</td>
</tr>
<tr>
<td>Learning</td>
<td>550</td>
<td>36%</td>
</tr>
<tr>
<td>Recruitment into specific programs</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>Geospatial technologies</td>
<td>460</td>
<td>30%</td>
</tr>
<tr>
<td>Energy production</td>
<td>160</td>
<td>10%</td>
</tr>
<tr>
<td>Electronics and controls</td>
<td>300</td>
<td>8%</td>
</tr>
<tr>
<td>Information and communications technologies</td>
<td>3,310</td>
<td>18%</td>
</tr>
<tr>
<td>Other</td>
<td>2,150</td>
<td>11%</td>
</tr>
<tr>
<td>Security, information assurance, and forensics</td>
<td>2,350</td>
<td>12%</td>
</tr>
<tr>
<td>Chemical processes</td>
<td>20</td>
<td>1%</td>
</tr>
<tr>
<td>Optics</td>
<td>250</td>
<td>10%</td>
</tr>
<tr>
<td>General manufacturing</td>
<td>3,610</td>
<td>10%</td>
</tr>
<tr>
<td>Recruitment from underrepresented groups</td>
<td>90</td>
<td>10%</td>
</tr>
<tr>
<td>Micro and nanotechnologies</td>
<td>40</td>
<td>10%</td>
</tr>
<tr>
<td>Automotive manufacturing</td>
<td>250</td>
<td>10%</td>
</tr>
</tbody>
</table>

Acme Community College IT Program: 40% women

Percentage of Female Students in ATE-Funded Programs: 24%
Benchmarking

Information and communications technologies

3,310

31%

Acme Community College IT Program: 40% women

ATE benchmark 31%

Grant begins

Grant renewed
Summary

The data you collect can be used at the project/center level, as well as at the overall ATE program level. It can inform your evaluations and planning for future grants.

Regular data collection activities prevent overload at key points throughout the project year, and managing your data can maximize its relevance and accuracy.

Comparing your project to the overall ATE averages can also help future planning.

• Your results can only be as good as the data you collect.
Discussion:
Using Research to Guide OP-TEC’s Plan of Work

Dan Hull
OP-TEC
The National Center for Optics and Photonics Education

- Based at UCF; working with seven partner colleges in FL, NC, SC, NJ, PA, IA & CA
- Sixth year of operation; began in 2006
- Photonics (lasers & optics) is an enabling technology for many fields
- Goal: Provide an adequate supply of well-educated technicians for R&D, service and applications in enabled fields (mfg., medical, defense, communications, energy, etc.)
- Encourage/assist in starting new AAS photonics programs
- Support the growth and improvement of programs in 31 colleges
- Program evaluation is key to the focus and efficient accomplishment of our goals
OP-TEC’s Evaluation Team

**External Evaluator:** Designs OP-TEC’s annual evaluation plan

**Internal Evaluator:** Conducts studies to quantify need/capacity and to assess center progress

**NVC:** Reviews evaluations with PIs and staff

**PI:** Formulates goals and strategies for the next year

**Evaluators:** Determine metrics to assess next year’s progress
Example 1: Adequate Capacity?

**Employer Needs Study:** Determines projected annual needs for new technicians. 1,200/year

**Capacity Study:** Projects enrollment and completers of 31 photonics colleges. 270/year

**Gap:** 1,200 needed vs. 270 provided

**Goal:** Increase number of photonics programs, average enrollment and retention

**Strategies:** (1) Faculty training and new program planning; (2) More robust “high school pipelines”; (3) “Just-in-time” video math tutorials
Example 2: Program Improvement

Examine **emerging technologies** in applications of photonics: e.g., fiber lasers

Examine effective strategies to **improve teaching/learning**: e.g., e-books with enhancements

Develop **curriculum materials and enhancements**

**Evaluate products:**
- Employer review of materials
- Pilot test new materials/products in classes

**Revise** materials/products
Benefits to OP-TEC of EvaluATE Survey & Data

- More difficult to provide some of the data because it has to be retrieved from the colleges that we support
- We now have coordinators that we support at each college, who collect this data for us
- The data from these colleges tells us their strengths and needs; we use this to plan appropriate assistance for the next year
- We can compare our progress in certain areas to the norms in the survey data
EvaluATE Webinars

March 21
Reducing the Outcomes Angst: A Step-by-Step Approach to Identify What to Measure
featuring ATE evaluator Lana Rucks

Register at www.evalu-ate.org/events
AEA

Coffee Break Webinar Series

January 19
Information Visualization Throughout the Evaluation Lifecycle

January 26
Changing the Evaluation Plan When Stuff Hits the Fan

Get more information/join at www.eval.org
www.evalu-ate.org

ATE Evaluation Listserv

Conduit Newsletters

ATE Evaluator Directory

Digital Resource Library

Events
Thank You