





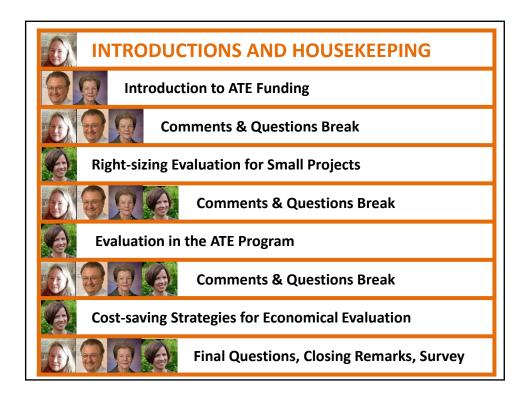
### **Objectives**

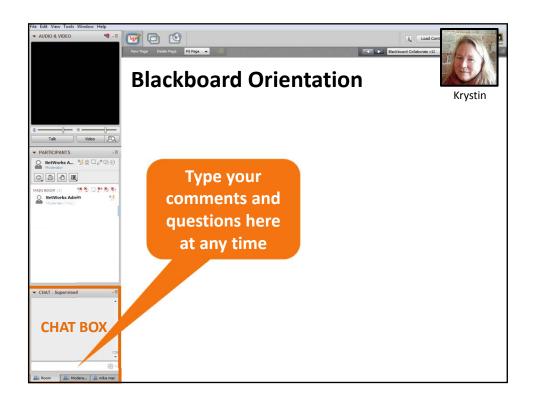


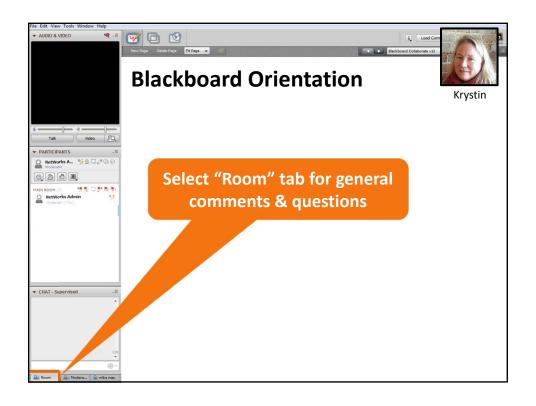
Krystin

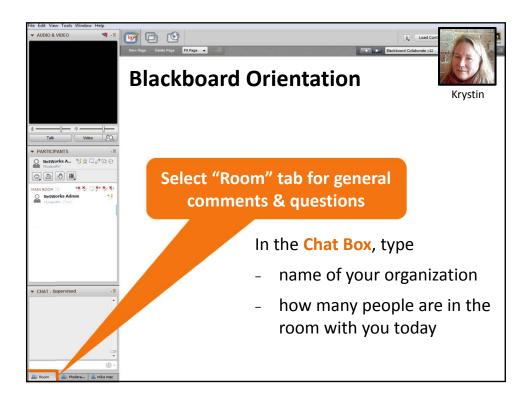
### By the end of this webinar, you will...

- 1. Know the requirements and expectations for evaluation of ATE small grants.
- 2. Know how to maximize resources so that evaluation brings value to your small project.









### **Materials**









Recording



**Handout** 

We'll email you everything by the end of the week Also will be available from evalu-ate.org/events/march\_2014

## **Introduction to ATE Funding**



**Dennis** Faber



**Elaine** Craft





Dennis

The NSF ATE program focuses on strengthening technician education at the post-secondary and secondary levels for the high-technology fields that drive our nation's economy.

### **NSF ATE Program**



Dennis

### ATE grantees are expected to:

- ensure that community colleges lead the grant efforts
- meet STEM workforce needs
- enhance STEM faculty teaching & leadership skills in technician education
- partner with employers & other key stakeholders

## **Funding Levels**



Dennis

### **SMALL GRANTS**

- Institutions New to the ATE Program
- \$200K for 3 years





## **Funding Levels**



Dennis

### **PROJECTS**

- up to \$900K for 3 years





## **Funding Levels**



Dennis

### **PROJECTS**

- Program Development,
   Implementation and
   Improvement
- Professional Development for Educators
- Curriculum & Educational Materials Development
- Teacher Preparation



## **Funding Levels**



Dennis

### **CENTERS**

### **National**

- up to \$5M for 4 years

### Regional

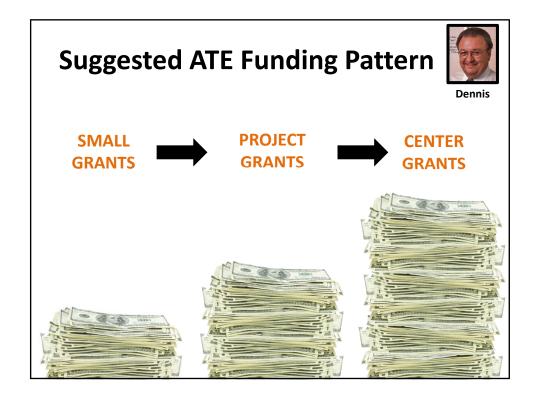
- up to \$3M for 4 years

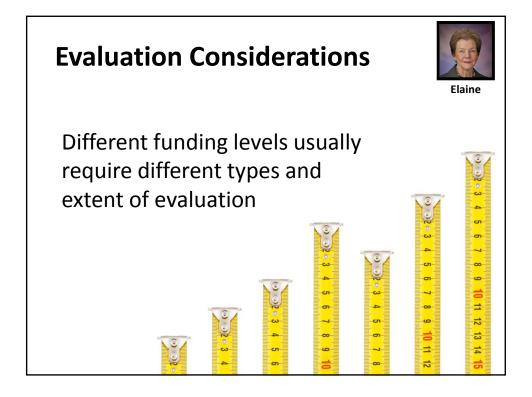
### Resource

up to \$1.6M , 4 years









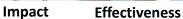
### **Evaluation Considerations**



Elaine

Regardless of funding level, the ATE Program is interested in:





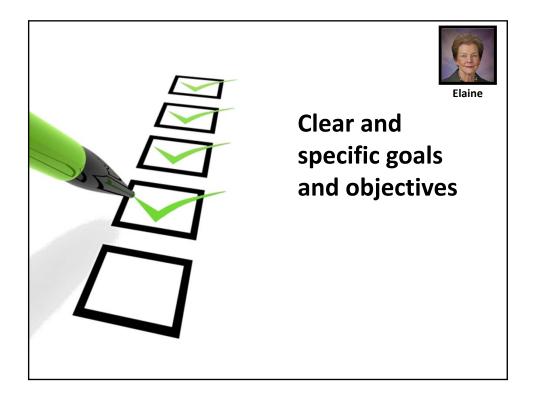


Sustainability



Leveraging prior work, lessons learned, research







## Clear and specific goals and objectives



Elaine

**Goal 1:** Improve career awareness and increase student enrollment and success in the civil engineering technology program through college in-reach activities to improve career awareness.

**Goal 1, Objective 1:** Recruit from within the college to increase enrollment in civil engineering by 15% over three years, from a baseline enrollment of 60 first-year curriculum students in 2013-14.





Elaine

Activities consistent with objectives



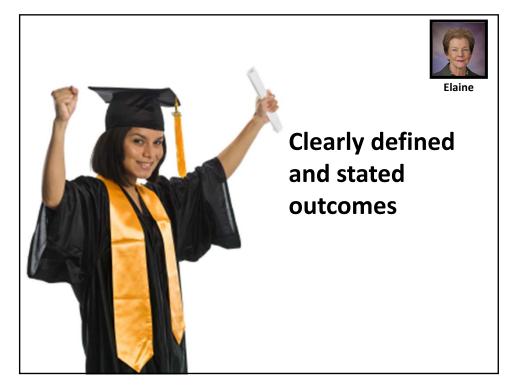
## Activities consistent with objectives



Elaine

### **Goal 1, Objective 1 Activities:**

- Select and prepare four well-spoken, diverse student ambassadors from among second-year students in the civil engineering technology program to assist with in-reach events.
- Conduct three types of in-reach events per year for 60 or more alreadyenrolled students, targeting students enrolled in program prerequisites
  such as College 101 and Intermediate Algebra, classroom presentations
  by student ambassadors, lunch-and-learn programs with industry
  speakers, and peer mentoring.
- Student Ambassadors provide informal peer mentoring for up to 15 highly interested students to encourage prospective civil engineering majors.





## Clearly defined and stated outcomes



Elaine

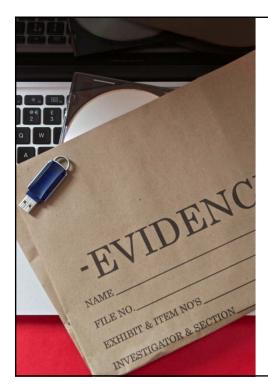
- In response to student ambassador presentations in targeted classes, at least 25% of those enrolled in the classes indicate an increased interest in majoring in civil engineering.
- Lunch-and-learn programs each year attract 30 prospective students, of whom 50% are likely to choose the civil engineering major.
- Peer mentoring is provided to 15 or more students indicating they are likely to choose the civil engineering major.





Elain

Quantitative and qualitative outcome measures





Elain

## Evidence to support your claims



## **Evidence to support** your claims



Elaine

## Quantitative and qualitative evidence that implemented strategies worked:

- Event participation data
- Observation of audience interest and interaction with Student Ambassador speakers and industry speakers
- Event participant interviews or survey data
- Student Ambassador interviews and feedback
- New student interviews and feedback
- Faculty interviews and feedback
- Baseline fall 2013, and ....SO WHAT?
- Fall 2015 and fall 2016 program enrollment data

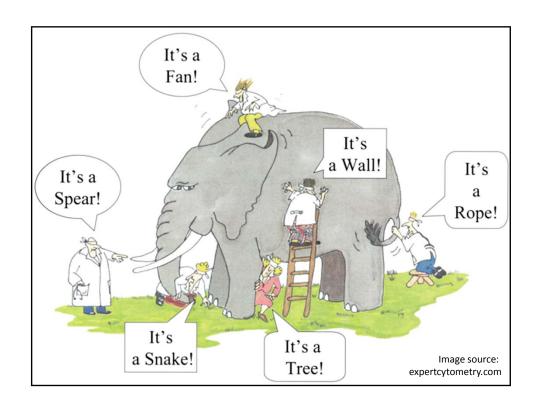


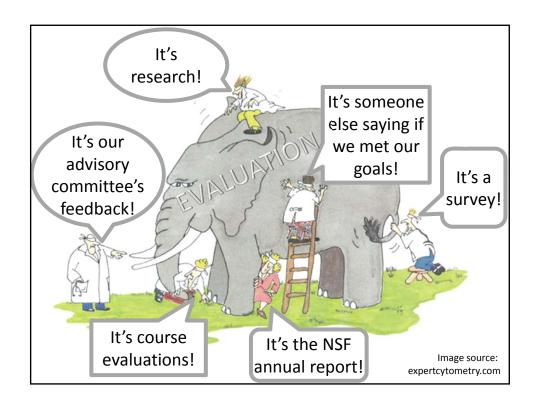




## Right-Sizing Evaluation for Small Projects

**Lori** Wingate









Lori

The systematic determination of something's merit, worth, or significance.

## **Evaluation**



Lori

- 1. Ask important questions about a project's processes and outcomes.
- 2. Gather evidence that will help answer those questions.
- 3. Interpret the results and answer the questions.
- 4. Use the information for accountability, improvement, and planning.

## Big v. Small

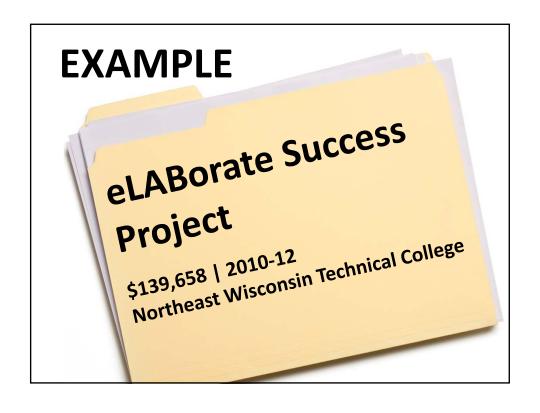


Lori

**Conceptually,** there is no difference between evaluating a small project and evaluating a large project.

**Practically,** evaluations of small projects involve

- smaller evaluation questions
- fewer evaluation questions
- less data
- shorter timelines
- smaller budgets



...faculty-initiated project in response to challenges associated with the open lab format used at the college. Because students use the lab on an openentry/open-exit basis, the staff member on hand at any one time might not have the expertise needed to help the student. To address this challenge, the staff is implementing a strategy of cross training, support and enhancement that provides all faculty members with enough knowledge to deal with basic content issues and questions in the shared concentrations (Electrical Engineering Technology, Electronics/Biomedical Technology, Electro-Mechanical Technology, and Automation Engineering Technology.). ...

#### Goals:

- Enhance the quality of students' learning experience in the Manufacturing Technology Center by improving the instructor's ability to assist all students in select courses.
- 2. Improve the quality of the labs.
- 3. Increase the percentage of students successfully completing courses on his/her first attempt.



Lori

1. What is the problem or need being addressed by this project?

←Failure rate must be relatively high

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Lori

## 2. What are the main project activities?

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Lori

3. Who are the primary participants in the project's activities?

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4. What will be different for faculty because of the project?

#### Goals:

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5. Who is ultimately supposed to benefit from this project?

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6. What is expected to be different for students because of the project?

### 1. What is the problem or need being addressed by this project?

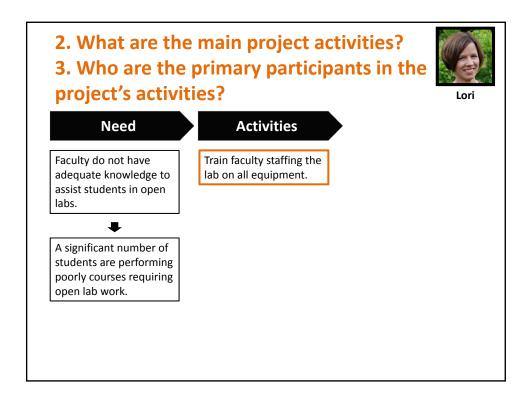


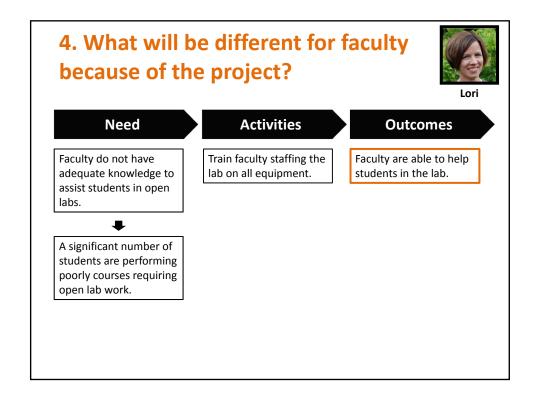
#### Need

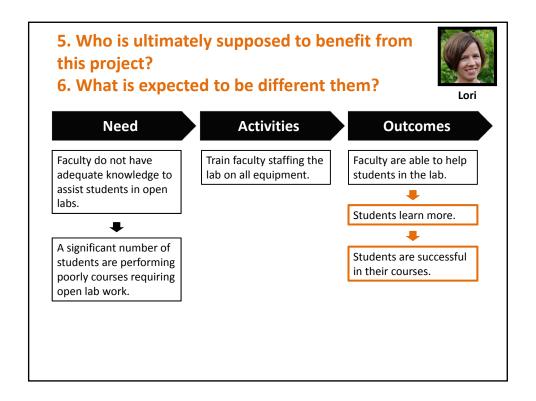
Faculty do not have adequate knowledge to assist students in open labs.

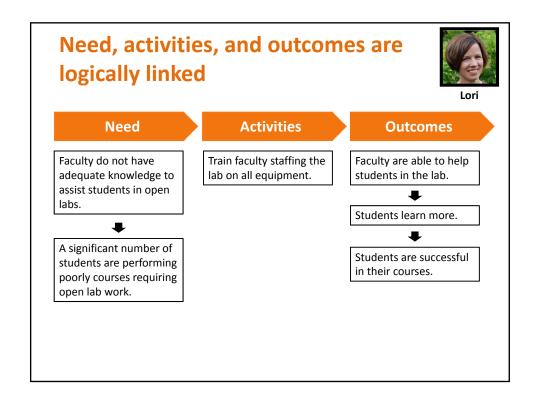


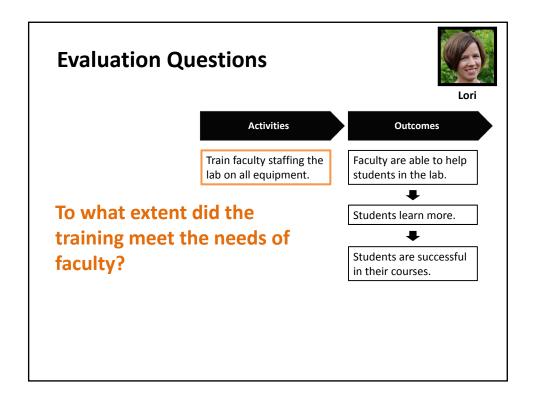
A significant number of students are performing poorly courses requiring open lab work.

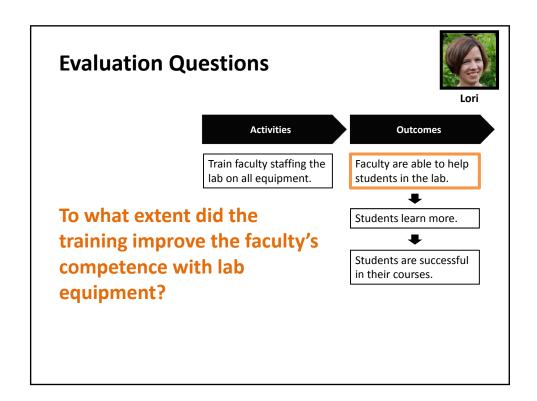


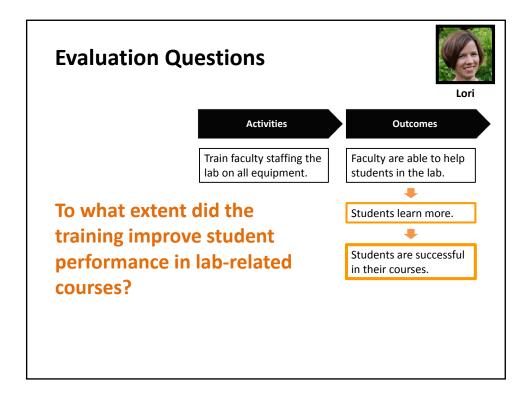


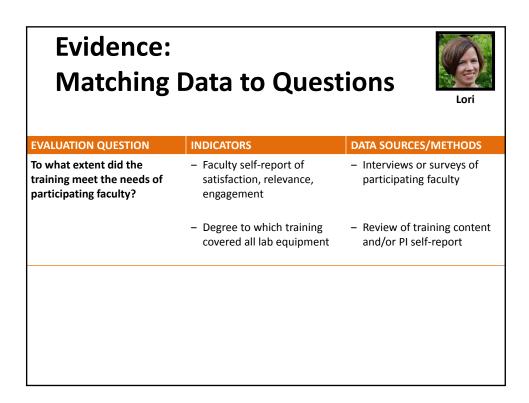












## **Evidence:** Matching Data to Questions



Lor

<b>EVALUATION QUESTIONS</b>	INDICATORS	DATA SOURCES/METHODS
To what extent did the training improve the faculty's competence with lab equipment?	Faculty self-report of learning	Interviews or surveys of participating faculty
	Percentage of faculty participation	Project records
	Participants' ability to operate lab equipment	Performances tasks during training
	Student satisfaction with the help they receive in labs	Surveys or interviews of students

## **Evidence: Matching Data to Questions**



Lori

o what extent did the	Charlent and de con	
To what extent did the training improve student performance in lab-related courses?	Student grades on assignments requiring lab work	Provided by faculty teaching courses
	Student grades for lab-related courses.	Provided by faculty teaching courses
	Percentage of students passing courses on first attempt	Institutional data

## **Evaluation**



Lori

- ✓ Ask important questions about a project's processes and outcomes.
- ✓ Gather evidence that will help answer those questions.
- 3. Interpret the results and answer the questions.
- 4. Use the information for accountability, improvement, and planning.

### Interpretation



Lori

<b>EVALUATION QUESTIONS</b>		TARGETS
To what extent did the training improve student performance in lab-related courses?	Student grades on assignments requiring lab work	75% of students will achieve a grade of 'C' or better on all assignments
	Student grades for lab-related courses	75% or more of students will achieve course grade of 'C' or better in
	Percentage of students passing classes on first attempt	Increase from 50% to at least 75%

Compare results with targets in order to answer questions

## **Evaluation**



Lori

- ✓ Ask important questions about a project's processes and outcomes.
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- 3. Use the information for accountability, improvement, and planning.

### **Using Evaluation**

### **Accountability**

Include results in your annual report to NSF



### **Using Evaluation**

### **Accountability**

Include results in your annual report to NSF

### **Improvement**

 Monitor results as data are gathered to determine if changes are needed in implementation

### **Planning**

- Determine what worked and what didn't as you plan your next project
- Summarize outcomes and lessons learned in your next proposal's "Results of Prior NSF Support" section

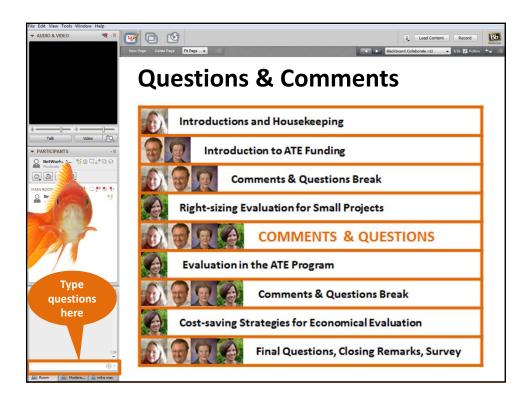


## **Evaluation**



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# Evaluation in the ATE Program

**Lori**Wingate



### **ATE Program Goals**

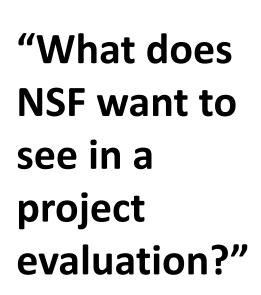


Lori

- produce more qualified science and engineering technicians to meet workforce demands
- improve the technical skills and the STEM preparation of these technicians and the educators who prepare them

Your project's job is to make a contribution to these goals.

Your evaluation's job is to determine the merit, worth, and significance of your contribution.





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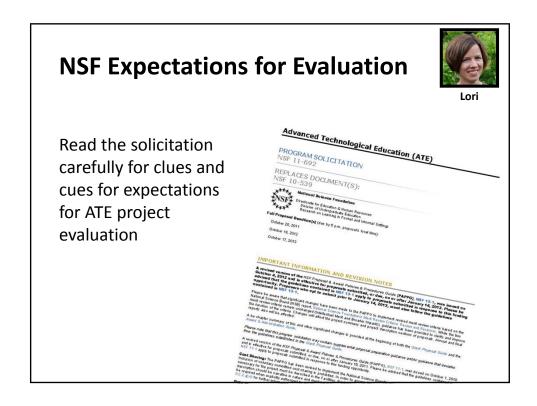
Ask your program officer!



Lori

(If you're not sure who your PO is, find out!)





### **NSF Expectations for Evaluation**



Lori



## ATE-Specific INTELLECTUAL MERIT Criteria about Evaluation:

Is the evaluation likely to provide useful information to the project and others?

66 The most important purpose of evaluation is not to prove, but to improve. 99

—Daniel Stufflebeam



Lori



# CURRICULUM AND EDUCATIONAL MATERIALS DEVELOPMENT PROJECTS



Evaluation activities are deep and broad, demonstrating the impact of the project on many students and faculty. Evaluation must include measures of increased student learning of content and processes and have input from employers. ??

#### **NSF Expectations for Evaluation**



Lori



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#### **NSF Expectations for Evaluation**



Lori



# CURRICULUM AND EDUCATIONAL MATERIALS DEVELOPMENT PROJECTS

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Lori



## PROFESSIONAL DEVELOPMENT PROJECTS

Evaluation should demonstrate use in the classrooms and sustainable changes in practice of participating faculty and teachers. Changes in student learning outcomes as well as students' perceptions of technical careers should be measured.

#### **NSF Expectations for Evaluation**



Lori



## PROFESSIONAL DEVELOPMENT PROJECTS

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#### **NSF Expectations for Evaluation**



Lori



## PROGRAM IMPROVEMENT AND DEVELOPMENT PROJECTS

Evaluative activities should provide evidence on the extent to which the project goals and objectives are realized.



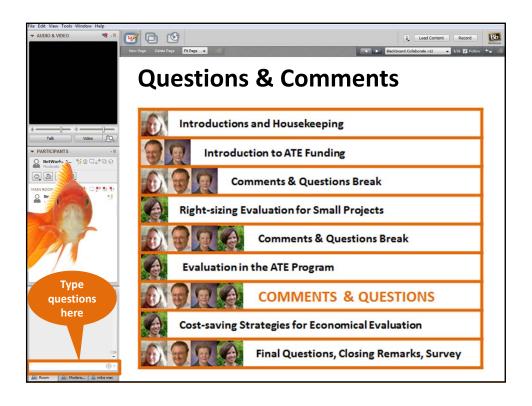
Lori



## PROGRAM IMPROVEMENT AND DEVELOPMENT PROJECTS

66 Evaluative activities should provide evidence on the extent to which the project goals and objectives are realized.







Cost-saving
Strategies for
Economical
Evaluation

**Lori** Wingate

#### **Investing in Evaluation**



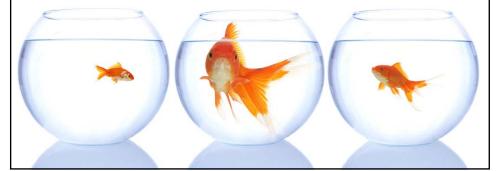
Lori

Evaluation is too small: Evaluation is too big. Evaluation is just right:

Minimal investment yields minimal return.

Drains resources away from project implementation.

Adds value to the project.



#### **Budgeting for ATE Evaluation**



Lori



66 The funds to support an evaluator independent of the project or center must be requested and the requested funds must match the scope of the proposed evaluative activities. 99

#### **Budgeting for ATE Evaluation**



Lori



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must be requested and the requested funds must match the scope of the proposed evaluative activities. 99

## What makes an evaluator INDEPENDENT?



Lori

- Does not have other roles on the project
- Is not supervised by someone who works on the project
- Has no financial or intellectual stake in the project's success



# Degrees of evaluator independence (externality)



Lori

- Internal to project
- External to project, but internal to institution
- External to both project and institution

MUST have an external evaluator

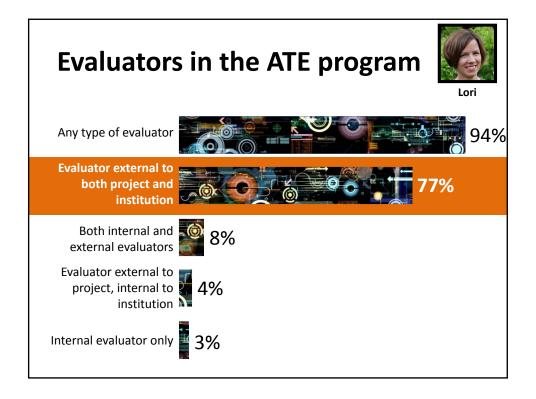
# Degrees of evaluator independence (externality)



Lori

- Internal to project
- External to project, but internal to institution
- External to both project and institution

MAY also have an internal evaluator



#### **Budgeting for ATE Evaluation**



Lori



66 The funds to support an evaluator independent of the project or center must be requested and the requested funds must match the scope of the proposed evaluative activities. \$9

#### **Budgeting for ATE Evaluation**



Lori



66 The funds to support an evaluator independent of the project or center must be requested and the

requested funds must match the scope of the proposed evaluative activities. ??

#### How much does evaluation cost?



Lori

On average, ATE projects allocate 8% of their budgets to evaluation

Median expenditure among small projects: \$5,000/year



## How much do evaluators get paid?



Lori

Salaries vary widely:

~\$200/day to ~\$2,000/day

For illustration

Average daily rate of a U.S. associate professor: \$640/day

\$15,000 total evaluation budget \$640 daily rate

= 23 days total (not accounting for travel and other costs)

< 8 days/year



#### **Cost-saving Strategies**



Lori

- 1. Develop a tracking system to monitor project reach and participation.
- 2. Maintain a record of key project activities and accomplishments
- 3. Utilize institutional research data to the fullest extent possible.
- 4. Leverage internal and external evaluation to answer the most important questions.

#### **Cost-saving Strategies**



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## Keep good records!

#### **Cost-saving Strategies**



Lori

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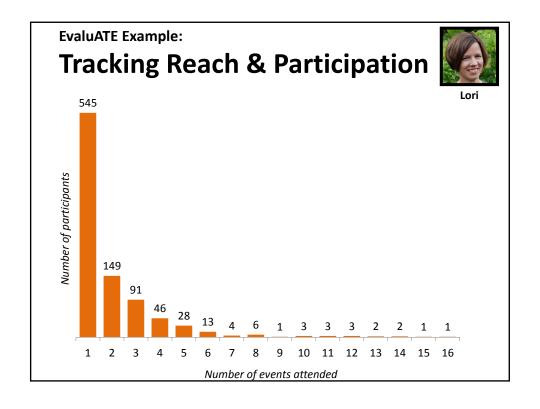


Lori

Use spreadsheet or database software to keep a log of **WHO PARTICIPATED** and their

- √ key demographics
- √ contact information
- √ involvement in the project, including dates

# EvaluATE Example: Tracking Reach & Participation College administrators Evaluators Pls Project staff No ATE role CoPIs CoPIs 5% Other ATE role 5%



# Tracking Reach & Participation

Data on project participants are also needed for

- NSF annual reports
- ATE annual survey



#### **Cost-saving strategies**



Lori

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#### **Cost-saving strategies**



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- 4. Leverage internal and external evaluation to answer the most important questions.

#### **Institutional Data**



Lori

**Common Data Elements** 

- student ID
- demographics
- program of study
- retention
- graduation
- track over time
- create comparison group

Make friends with your institutional research person now.

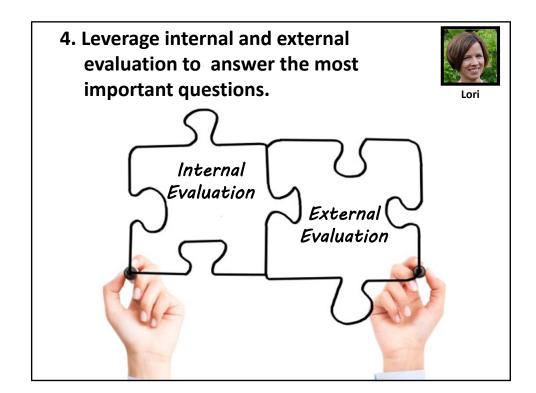
Find out how and when requests should be submitted.

#### **Cost-saving strategies**



Lori

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## **External Evaluator as Heavy- Lifter**



Lori

 External evaluator plays lead role in planning the evaluation, designing instruments, analyzing results, and writing the report





#### **External Evaluator as Architect**



Lor

- External evaluator designs the overall evaluation and data collection instruments.
- Project team executes the plan.



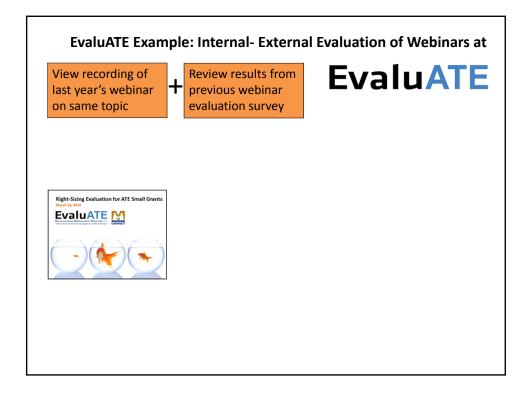
#### **Divide and Conquer**

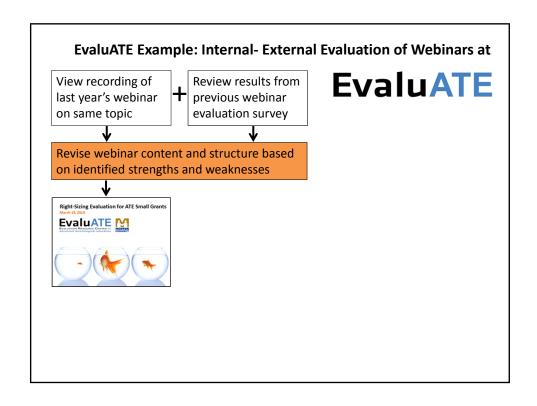


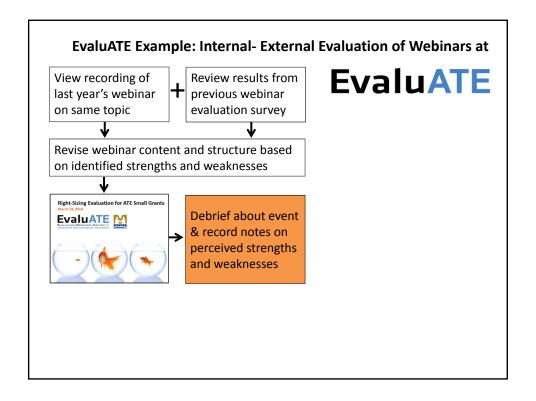
Lori

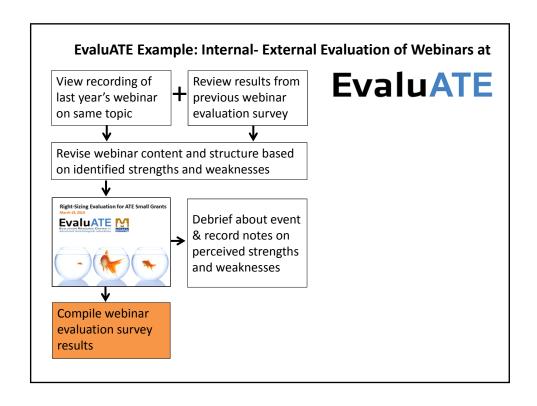
- Internal team responsible for evaluation of reach, participation, and immediate outcomes.
- External evaluator responsible for evaluation for longer-term outcomes.

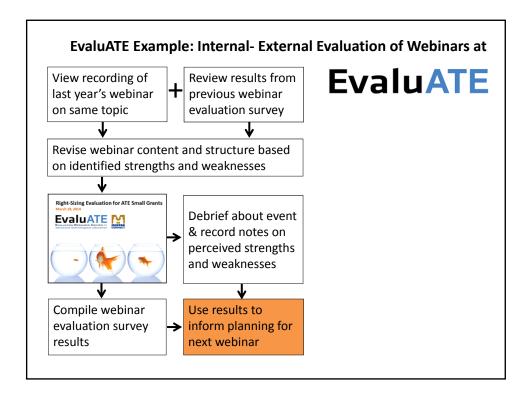


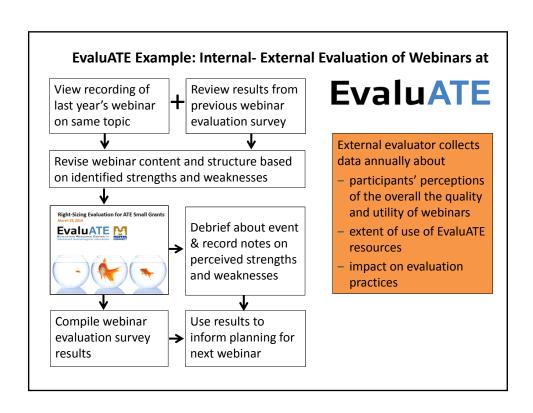


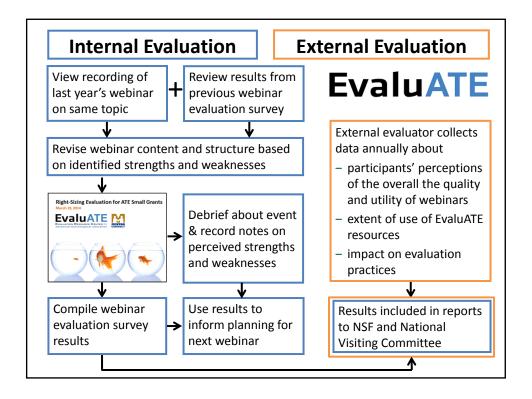


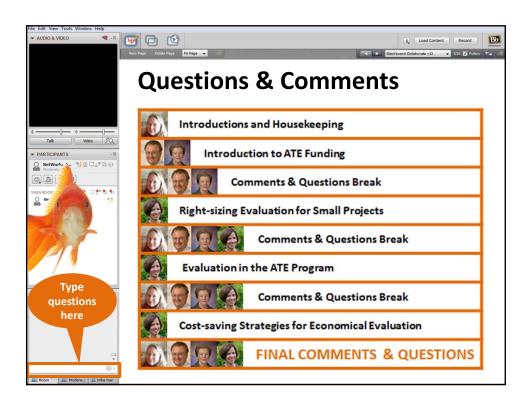












#### Introducing...



#### FORMATIVE ASSESSMENT SYSTEMS FOR ATE



This material is based upon work supported by the National Science Foundation under grant number 1349079. Any opinions, findings, and conclusions or recommendation expressed in this material are those of the author and do not necessarily reflect the views of NSF.



FORMATIVE ASSESSMENT SYSTEMS FOR ATE

The FAS4ATE project seeks to identify key evaluation questions and data to help PIs make real-time changes to improve their projects





They are seeking PIs and evaluators interested in engaging in a process of logic modelling and evaluation planning, culminating in a one day workshop





FORMATIVE ASSESSMENT SYSTEMS FOR ATE

Participants will have the opportunity to develop logic and evaluation models specific to their projects, identify real time data sources, plan for data collection systems and **interact with colleagues working in the same program areas** 







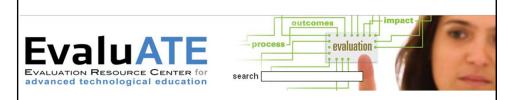
#### **WEBINAR INVITATION:**

Making a Logic Model that Works for You

May 21, 2014, 1-2:30 EDT

Learn more and register at

www.evalu-ate.org/events



#### www.evalu-ate.org

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