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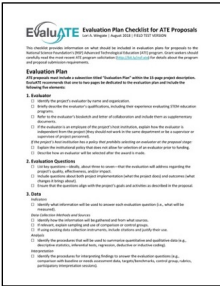
ATE Survey Data

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Materials



Slides



Evaluation Plan Checklist and Other Resources



Recording

Introductions



Mike
Lesiecki



Lyssa
Wilson Becho



Emma
Leeburg



Behind the Scenes



Lori
Wingate



Kelly
Robertson



Marilyn
Barger



Cynthia
Williams



Janet
Pinhorn



Shannon
Payne





This material is based upon work supported by the National Science Foundation under grant number 1600992.

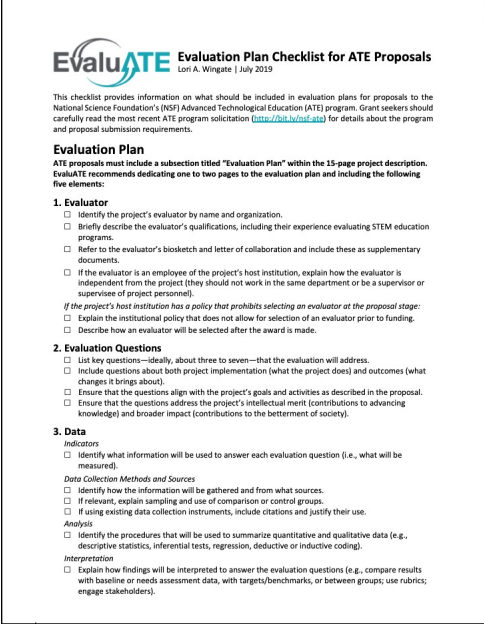
Any opinions, findings, and conclusions or recommendations expressed in this material are those of the presenters and do not necessarily reflect the views of NSF.



Webinar Overview

- 1 essential elements of an ATE proposal evaluation plan
- 2 integrating evaluation throughout a proposal
- 3 question and answer panel

RESOURCE
Evaluation Plan Checklist
for ATE Proposals



EvaluATE Evaluation Plan Checklist for ATE Proposals
Lori A. Wingate | July 2019

This checklist provides information on what should be included in evaluation plans for proposals to the National Science Foundation's (NSF) Advanced Technological Education (ATE) program. Grant seekers should carefully read the most recent ATE program solicitation (<https://pubs.nsf.gov>) for details about the program and proposal submission requirements.

Evaluation Plan
ATE proposals must include a subsection titled "Evaluation Plan" within the 15-page project description. EvaluATE recommends dedicating one to two pages to the evaluation plan and including the following five elements:

1. Evaluator

- Identify the project's evaluator by name and organization.
- Briefly describe the evaluator's qualifications, including their experience evaluating STEM education programs.
- Refer to the evaluator's biosketch and letter of collaboration and include these as supplementary documents.
- If the evaluator is an employee of the project's host institution, explain how the evaluator is independent from the project (they should not work in the same department or be a supervisor or supervisee of project personnel).

If the project's host institution has a policy that prohibits selecting an evaluator at the proposal stage:

- Explain the institutional policy that does not allow for selection of an evaluator prior to funding.
- Describe how an evaluator will be selected after the award is made.

2. Evaluation Questions

- List key questions—ideally, about three to seven—that the evaluation will address.
- Include questions about both project implementation (what the project does) and outcomes (what changes it brings about).
- Ensure that the questions align with the project's goals and activities as described in the proposal.
- Ensure that the questions address the project's intellectual merit (contributions to advancing knowledge) and broader impact (contributions to the betterment of society).

3. Data

Indicators

- Identify what information will be used to answer each evaluation question (i.e., what will be measured).

Data Collection Methods and Sources

- Identify how the information will be gathered and from what sources.
- If relevant, explain sampling and use of comparison or control groups.
- If using existing data collection instruments, include citations and justify their use.

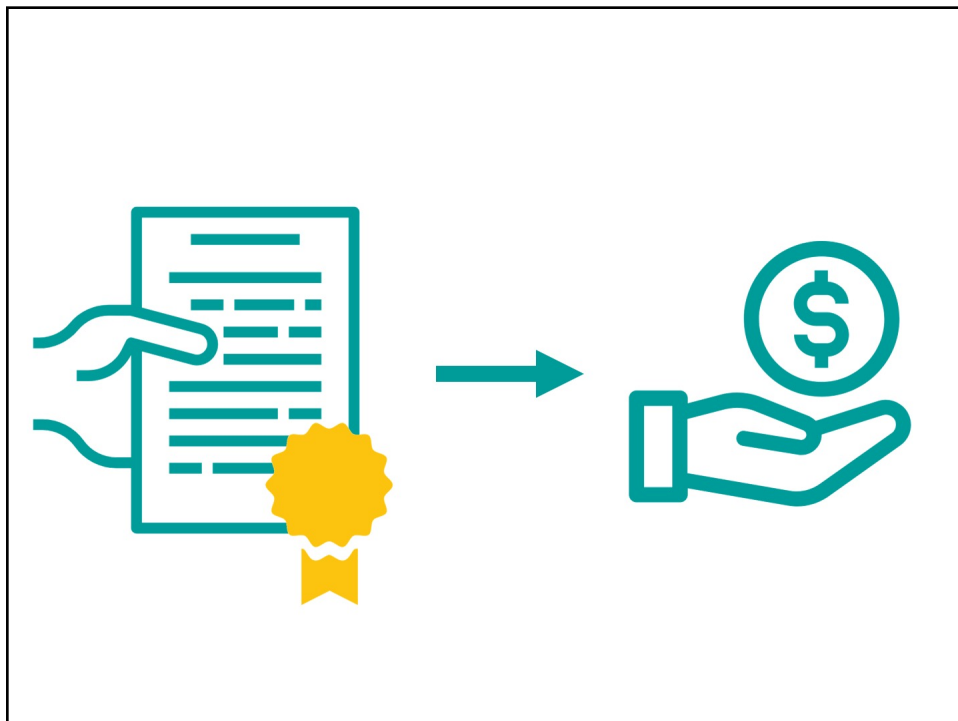
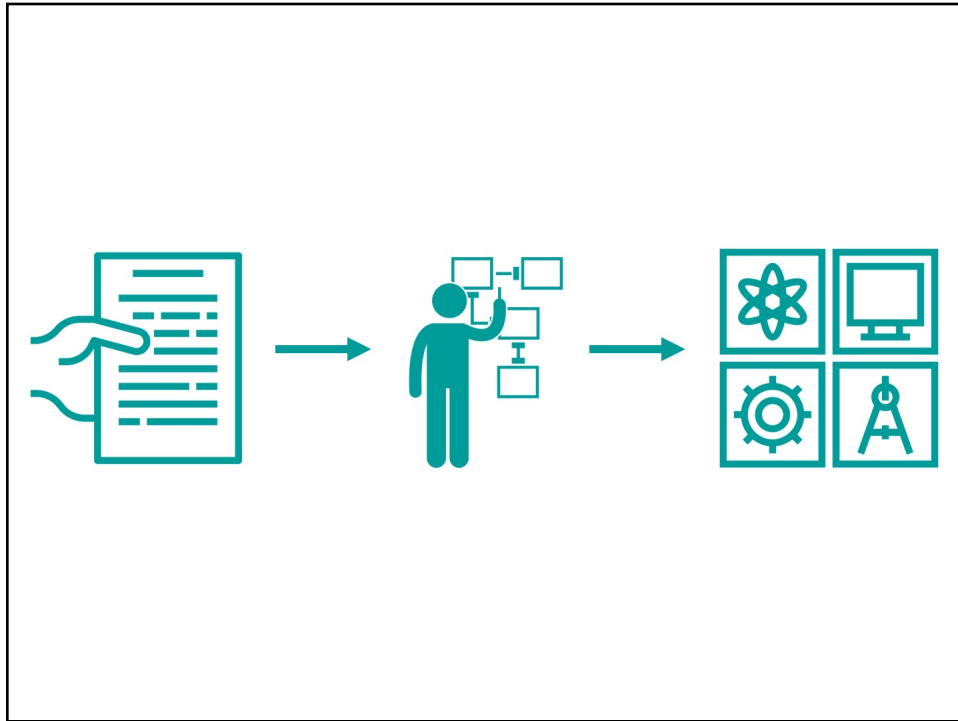
Analysis

- Identify the procedures that will be used to summarize quantitative and qualitative data (e.g., descriptive statistics, inferential tests, regression, deductive or inductive coding).

Interpretation

- Explain how findings will be interpreted to answer the evaluation questions (e.g., compare results with baseline or needs assessment data, with targets/benchmarks, or between groups; use rubrics; engage stakeholders).

Evaluation
A systematic determination of a
project's quality and effectiveness.





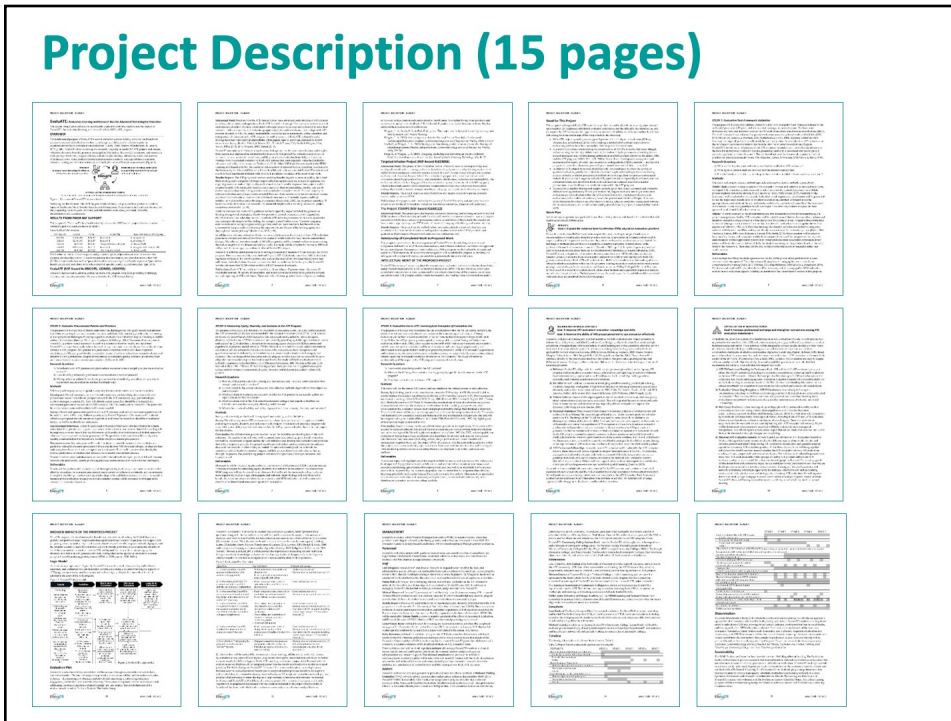
“if you don’t evaluate and assess your activities and outcomes you can’t know if the project was successful. It also provides the project team with data to convince others of the success of the project as well as contributing to the body of knowledge in that particular area of STEM.”

Celeste Carter
ATE Program Director 

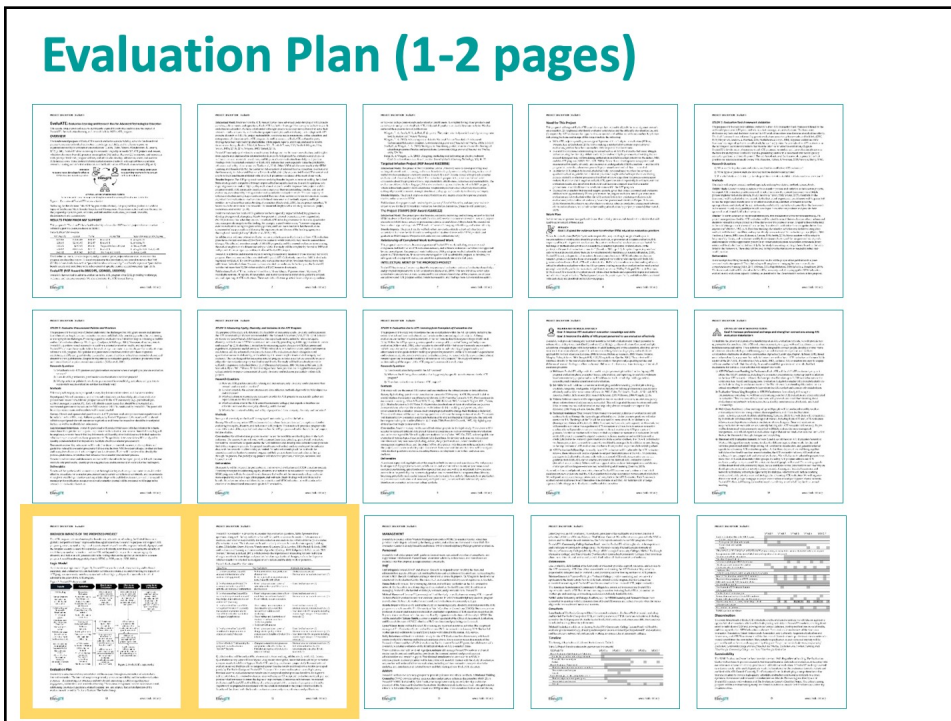


Essential Elements of an ATE Proposal Evaluation Plan

Project Description (15 pages)



Evaluation Plan (1-2 pages)



Evaluation Plan (1-2 pages)

PROJECT DESCRIPTION | EvaluATE

BROADER IMPACTS OF THE PROPOSED PROJECT

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Logic Model

As shown in our logic model (Figure 2), EvaluATE's research on evaluation, training and technical assistance, and evaluation network facilitation activities are oriented toward enhancing the capacity of ATE program community members to conduct and use high-quality evaluation in the interest of advancing the goals of the ATE program.

Figure 2. EvaluATE's logic model

| Inputs | Activities | Short-term Outcomes | Mid-term Outcomes | Long-term Outcomes |
|--|--|---|---|---|
| <ul style="list-style-type: none"> NSF Funding Human Resources: Staff, advisors, consultants, etc. and contractors Collaborating and Supporting Organizations: ATE Council, AACCC, Interdisciplinary P&L Program in Evaluation, Monitor Connect (NSF), SEM Learning and Research Center, University of North Carolina Consortium Infrastructure and Administrative Support at IUM: The Evaluation Center, Office of the Vice President for Research, Grants and Contracts Office | <ul style="list-style-type: none"> Research on Evaluation: Study 1. Evaluation Task Framework, Process, Factors and Practices; Study 2. Measuring Equity, Diversity, and Inclusion; Use in ATE Training and Technical Assistance: Webinars, Job Aids, Learning Resources, One-on-one coaching, ATE Evaluation Fellowship ATE Evaluation Network: ATE Evaluation Summit, ATE Evaluation Working Group, ATE Evaluation Research Network, Monthly Webinars | <ul style="list-style-type: none"> ATE community members increase their awareness of the value of ATE evaluation and its use in ATE (Short-term Goal 1) ATE evaluation improves their evaluation knowledge and skills (Short-term Goal 2) ATE project personnel improve their understanding of evaluation and ability to use it effectively to benefit their project (Short-term Goal 3) ATE community members increasingly connect with others in the ATE program to collaborate and co-develop evaluation (Short-term Goal 4) | <ul style="list-style-type: none"> ATE evaluation and program personnel are research findings to enhance their evaluation design, implementation, and management ATE evaluation and program personnel produce evidence of the quality and impact of their project work ATE project personnel regularly use evaluation to make continuous improvement A well-connected ATE evaluation network leverages their shared expertise to advance evaluation | <ul style="list-style-type: none"> High-quality evaluation data is a strategic asset in advancing the ATE program goal of producing more qualified technicians to meet workforce demands |

Evaluation Plan

EvaluATE's outcomes and implementation will be assessed through a combination of external and internal evaluation. The internal component primarily serves accountability and formative evaluation purposes—documenting our processes and outputs and answering questions regarding user engagement, satisfaction, and immediate learning. The external component is more outcome-oriented, addressing questions regarding sustained learning, use, and impact. The external portion of the evaluation will be led by Dr. Lana Rucka of The Rucka Group.

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| 6. How is EvaluATE influencing the program's overall evaluation capacity? (Impact) | Changes in organizational processes and practices related to evaluation Diffusion and uptake of EvaluATE's research findings | Biannual external evaluation surveys (E) Key informant interviews (E) Environmental scans, plus all data sources (E, I) |

Qualitative data will be analyzed by a two-member team working collaboratively to identify themes. Quantitative survey data will be analyzed using mainly descriptive inferential tests will be performed to compare results for different types of EvaluATE users (e.g., evaluators, project staff). Biannual external evaluation survey findings will be compared against baseline results and interpretive rubrics developed jointly by The Rucka Group and EvaluATE. Because of the extensive dataset across multiple years, biannual external evaluation survey results can be compared against previous iterations. To augment self-reported data, the external evaluation team will compare TA recipients' evaluation materials pre- and post-technical assistance to assess the degree of improvement. Conference calls between the external evaluators and EvaluATE staff will keep all parties apprised of the evaluator's progress and results. Reports will be prepared in accordance with the schedule indicated in the project timeline (Table 3). Results will be shared with the broader evaluation community via conferences and publications.

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Evaluation Plan (1-2 pages)

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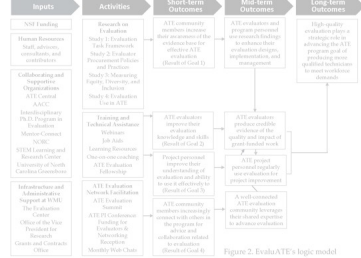


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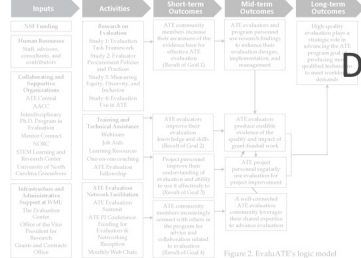


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Evaluation Plan (1-2 pages)

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| Inputs | Activities | Short-term Outcomes | Mid-term Outcomes | Long-term Outcomes |
|--|---|---|---|---|
| <ul style="list-style-type: none"> NSF Funding Human Resources (with training, stipends, and overheads) Collaborating and Supporting Organizations (ATI Council, AACU, Institutional Data Program in Evaluation, Member Council, NSRF, STEM Learning and Research Center, University of North Carolina Consortium) Infrastructure and Administrative Support at ATE Center Director's Time Grants and Contracts Other | <ul style="list-style-type: none"> Research on Evaluation Study 1: Evaluation Framework Study 2: Evaluator Preparation/Training and Practice Study 3: Measuring Equity, Diversity, and Inclusion in ATE Training and Technical Assistance Learning Resources ATE Evaluation Fellowship ATE Evaluation Network ATE Evaluation Fellowship ATE Evaluation Network ATE Evaluation Fellowship | <ul style="list-style-type: none"> ATE community members increase their awareness of the importance of high-quality evaluation (Knowledge Goal) ATE evaluators improve their evaluation knowledge and skills (Skill Goal) ATE program personnel regularly incorporate the program's research findings into their evaluation practice (Practice Goal) ATE program personnel regularly incorporate the program's research findings into their evaluation practice (Practice Goal) | <ul style="list-style-type: none"> ATE evaluation and program personnel are research findings in evaluation that inform their evaluation practice (Knowledge Goal) ATE program personnel regularly incorporate the program's research findings into their evaluation practice (Practice Goal) ATE program personnel regularly incorporate the program's research findings into their evaluation practice (Practice Goal) | <ul style="list-style-type: none"> High-quality evaluation is used to inform program change (e.g., assessing the role of postsecondary institutions, increasing workforce readiness) ATE program personnel regularly incorporate the program's research findings into their evaluation practice (Practice Goal) ATE program personnel regularly incorporate the program's research findings into their evaluation practice (Practice Goal) |

Figure 2. EvaluATE's logic model

Evaluation Plan

EvaluATE's outcomes and implementation will be assessed through a combination of external and internal evaluation. The internal component primarily serves accountability and formative evaluation purposes—documenting program processes and providing ongoing feedback to improve program engagement, addressing program needs, and identifying areas for improvement. The external component primarily serves summative and formative evaluation purposes—assessing the program's impact on the broader ATE community.

PROJECT DESCRIPTION | EvaluATE

EvaluATE's evaluation is driven by six overarching evaluation questions. Table 2 presents these questions, along with the key indicators that will be used to answer each question, data sources and methods, and whether responsibility for data collection and analysis lies with the internal (I) or external (E) evaluation teams. The indicators are based on a body of research on evaluation capacity building (Lubin, 2014; Lubin, Duffy, Meyers, Wandersman & Lenoise, 2014; Levitt, 2013; Peshall & Boyle, 2008) and evaluation of training and communities of practice (Conkey, 1999; Kirkpatrick & Kirkpatrick, 2016; Wenger, Traynor, & de Laat, 2011), which conveys the importance of measuring not only individual changes in attitude, knowledge, and practice, but also organizational changes, such as the degree to which evaluation is reflected in an organization's culture and the daily work of personnel.

Table 2. Evaluation Plan Overview

| Questions | Key Indicators | Methods and Sources |
|--|--|--|
| 1. To what extent has EvaluATE engaged its intended and other audiences? (Engagement) | <ul style="list-style-type: none"> Webinar attendance and participant characteristics User reports of sharing information from EvaluATE with others | <ul style="list-style-type: none"> Participation records (I) Biannual external evaluation surveys (E) |
| 2. To what extent are EvaluATE's activities and resources? (Satisfaction) | <ul style="list-style-type: none"> User ratings and descriptions of satisfaction with EvaluATE activities and resources | <ul style="list-style-type: none"> Event feedback surveys (I) |
| 3. To what extent has EvaluATE's work led to improvements in users' knowledge and attitudes toward evaluation? (Learning) | <ul style="list-style-type: none"> User ratings and descriptions of how much they learned from EvaluATE User attitudes toward evaluation | <ul style="list-style-type: none"> Event feedback surveys (I) Biannual external evaluation surveys (E) |
| 4. To what extent has EvaluATE's work prompted users to (a) modify their evaluation practices and (b) extend their network of evaluation colleagues? (Application) | <ul style="list-style-type: none"> User ratings and descriptions of their intent to apply what they learned from webinars and workshops User ratings and description of EvaluATE's influence on their evaluation practice Social network analysis | <ul style="list-style-type: none"> Event feedback surveys (I) Biannual external evaluation surveys (E) Interviews with TA recipients, including review of pre- and post-IA evaluation materials (E) |
| 5. To what extent has EvaluATE contributed to improvements in evaluation quality? (Impact) | <ul style="list-style-type: none"> User ratings and descriptions of changes in the quality of their evaluation activities as EvaluATE's influence | <ul style="list-style-type: none"> Event feedback surveys (I) Biannual external evaluation surveys (E) Interviews with TA recipients, including review of pre- and post-IA evaluation materials (E) |
| 6. How is EvaluATE influencing the program's overall evaluation capacity? (Impact) | <ul style="list-style-type: none"> Changes in organizational processes and practices related to evaluation Diffusion and uptake of EvaluATE's research findings | <ul style="list-style-type: none"> Biannual external evaluation surveys (E) Key informant interviews (E) Environmental scans, photo all data sources (E) |

Qualitative data will be analyzed by a two-member team working collaboratively to identify themes. Quantitative survey data will be analyzed using mainly descriptive inferential tests will be performed to compare results for different types of EvaluATE users (e.g., evaluators, project staff). Biannual external evaluation survey findings will be compared against baseline results and interpretive rubrics developed jointly by The Buckle Group and EvaluATE. Because of the extensive dataset across multiple years, biannual external evaluation survey results can be compared against previous iterations. To augment self-reported data, the external evaluation team will compare TA recipients' evaluation materials pre- and post-technical assistance to assess the degree of improvement. Consistent calls between the external evaluators and EvaluATE staff will keep all parties apprised of the evaluators' progress and results. Reports will be prepared in accordance with the schedule indicated in the project timeline (Table 3). Results will be shared with the broader evaluation community via conferences and publications.

Communication and Use 4

Evaluation Plan (1-2 pages)

PROJECT DESCRIPTION | EvaluATE

Timeline

The timing of key tasks and deliverables is shown in Table 3.

Table 3. Project Timeline (shown in quarter-year increments)

| RESEARCH | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 | YEAR 5 |
|---|--------|--------|--------|--------|--------|
| Study 1: Evaluation Framework Validation | | | | | |
| Finalize design and recruit study participants | | | | | |
| Data collection and analysis | | | | | |
| Publish | | | | | |
| Study 2: Evaluator Preparation | | | | | |
| Finalize design and recruit trainee members | | | | | |
| Data collection and analysis | | | | | |
| Publish | | | | | |
| Study 3: Strategies for Measuring EDI in ATE | | | | | |
| Finalize design and recruit participants | | | | | |
| Data collection and analysis | | | | | |
| Publish | | | | | |
| Study 4: Evaluation Use in the ATE Program | | | | | |
| Finalize study design | | | | | |
| Survey data collection and analysis | | | | | |
| Site selection and analysis | | | | | |
| Publish | | | | | |
| TRAINING & TECHNICAL ASSISTANCE (please training-related activities are already funded under current grant through summer 2020, so they are not listed here until expiration of current grant) | | | | | |
| Conduct one webinar per quarter | | | | | |
| Develop 2 AQs and job aids | | | | | |
| Conduct workshops at ATE PI Conferences | | | | | |
| Develop guidance materials for coaches | | | | | |
| Convene coaches for orientation | | | | | |
| Deploy coaches | | | | | |
| ATE EVALUATION NETWORK FACILITATION | | | | | |
| Lead ATE evaluation in annual ATE conference | | | | | |
| Host networking reception at ATE PI conference | | | | | |
| Ident and coordinate ATE evaluation fellows | | | | | |
| Host monthly web chats | | | | | |
| Host Biannual ATE Evaluation Summit | | | | | |
| EVALUATION | | | | | |
| Finalize detailed evaluation plan | | | | | |
| Conduct biannual surveys of EvaluATE's evaluation | | | | | |
| Conduct interviews with coaches and TA recipients | | | | | |
| Report on findings (EJ, social, research network, book) | | | | | |
| DISSEMINATION | | | | | |
| Presentations at conferences | | | | | |
| Publish quarterly newsletters | | | | | |

5 **Timeline**




Evaluation Plan → 1 Evaluator



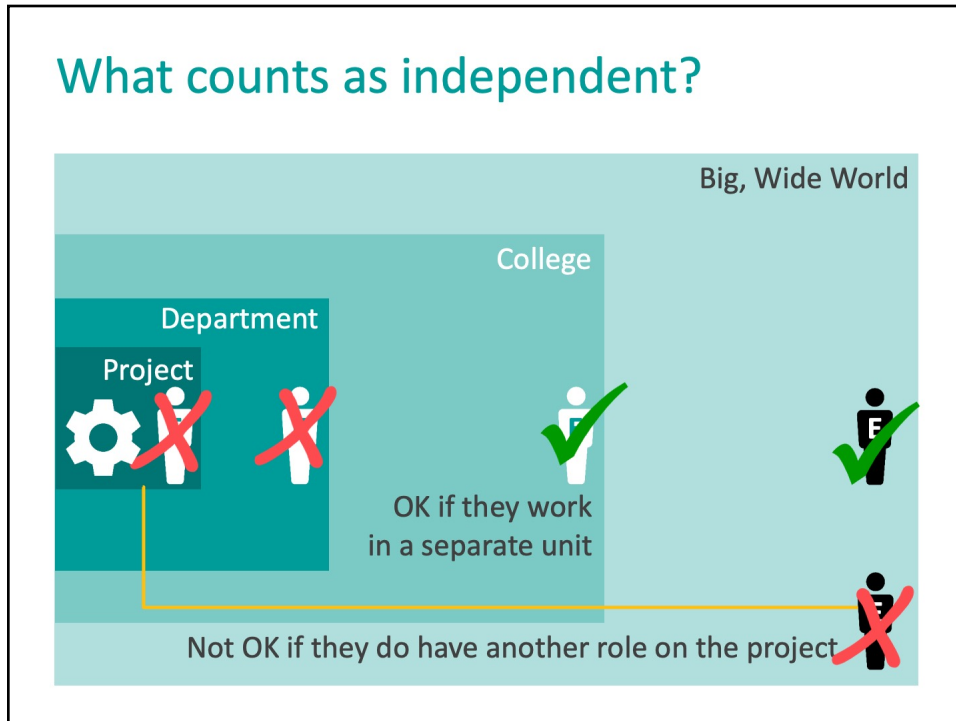
- Identify the project's evaluator
- Describe the evaluator's qualifications
- Refer to the evaluator's biosketch and letter of collaboration

Evaluators qualifications

- 
- Experience evaluating STEM education projects
 - Strong research and evaluation skills
 - Strong communication skills and a service orientation
 - Understanding of NSF and 2-year-college contexts

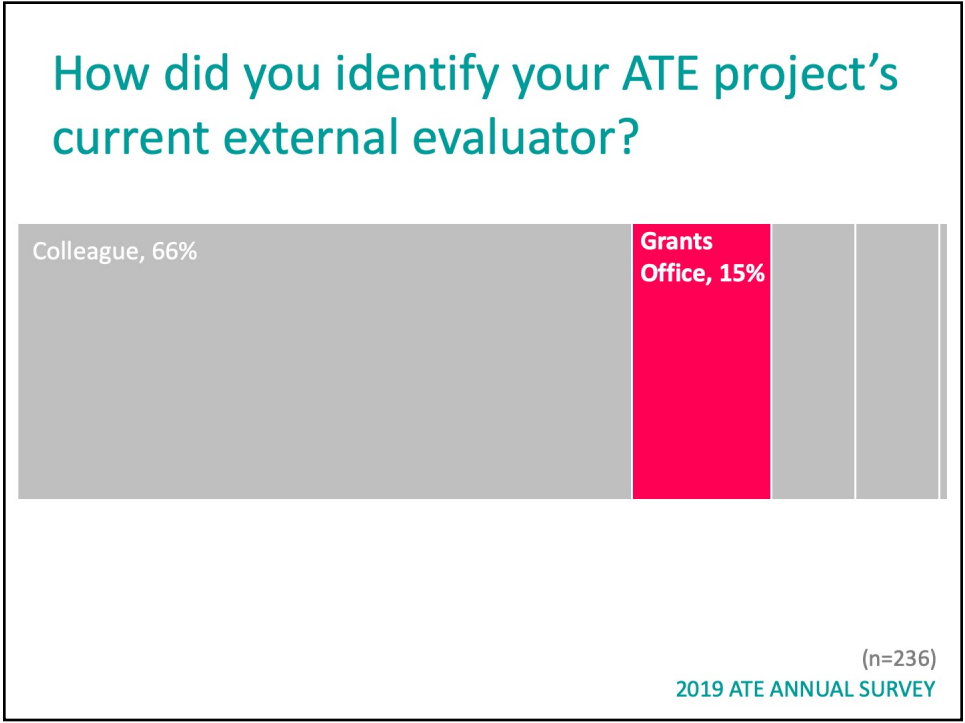
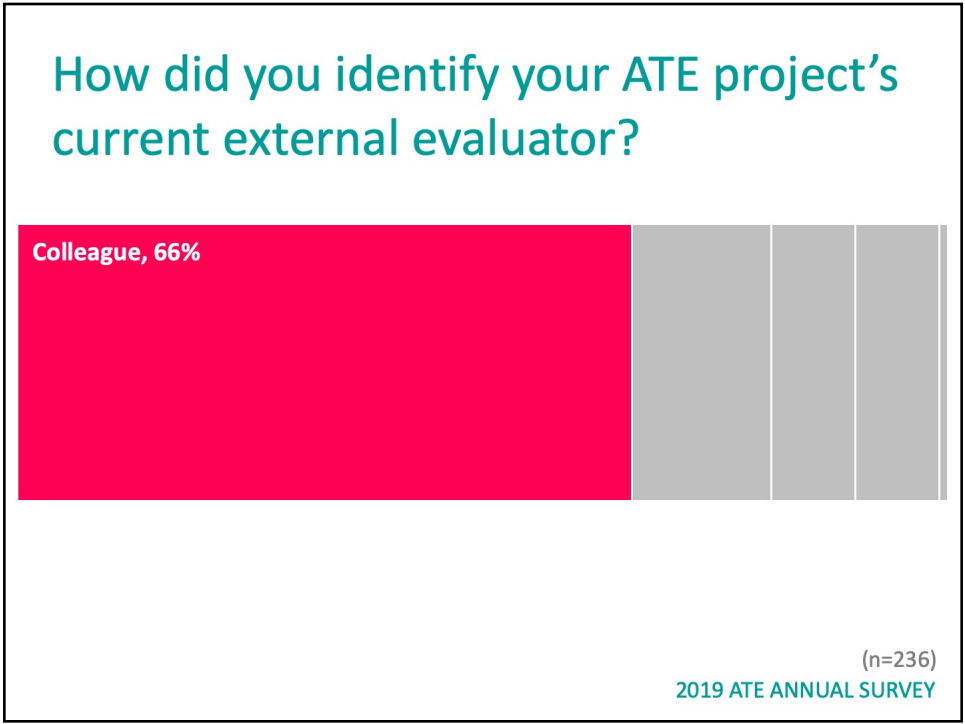


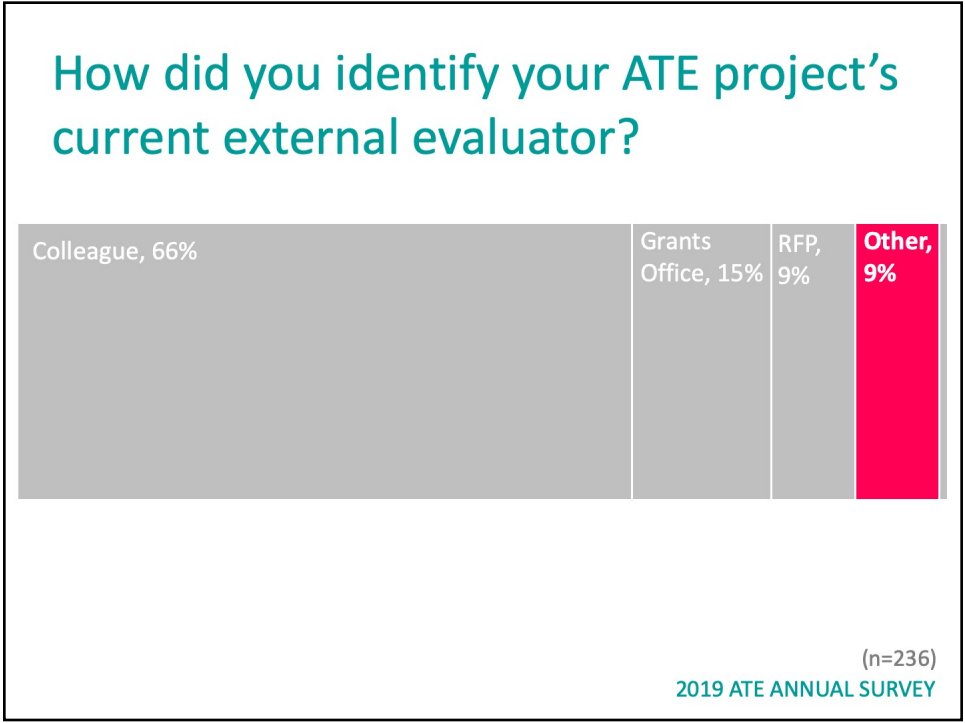
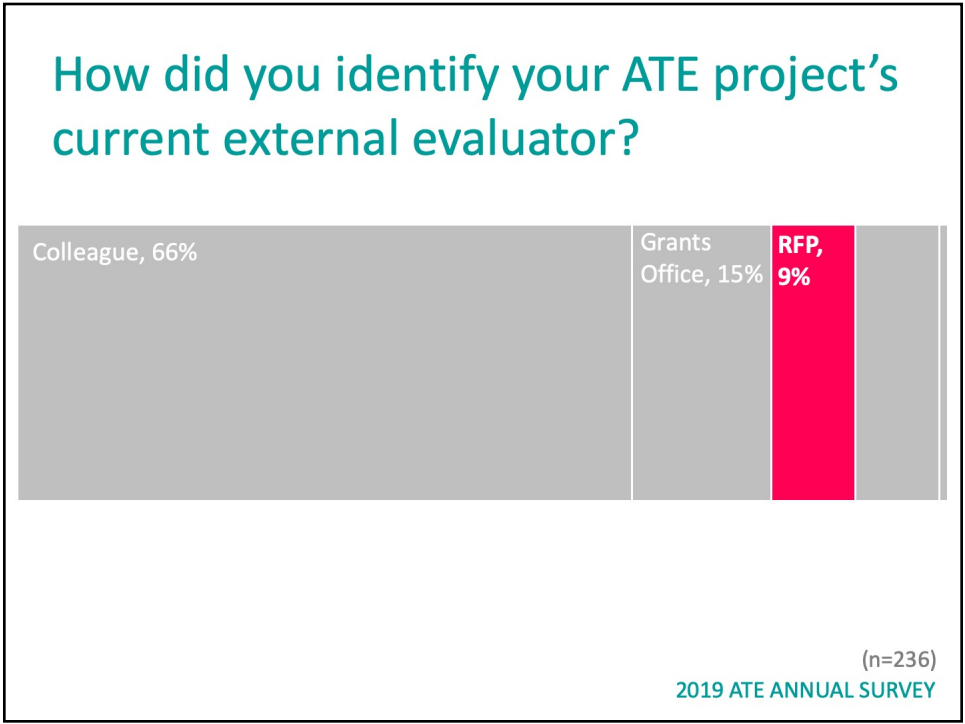
The funds to support an evaluator independent of the project or center must be requested ...

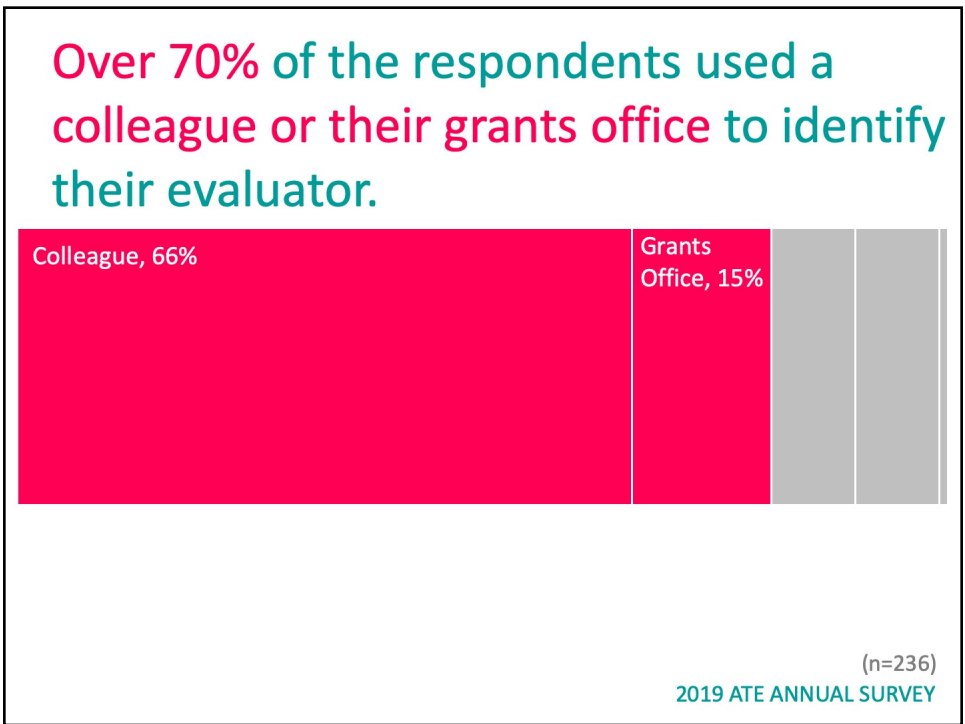
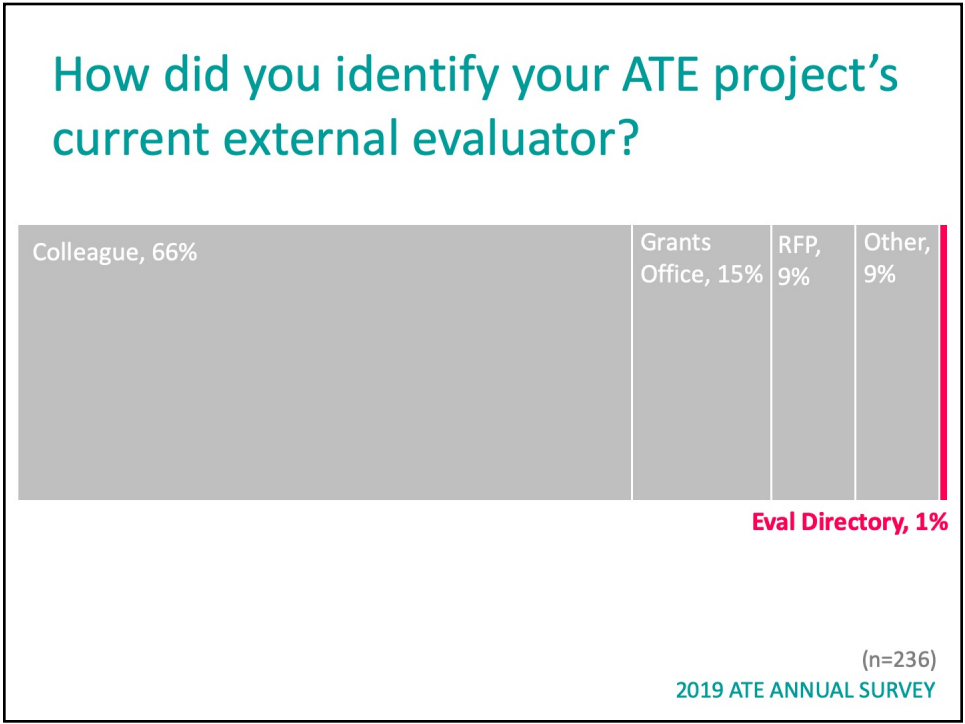


“How did you identify your ATE project's current external evaluator?”

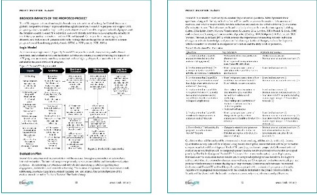
2019 ATE ANNUAL SURVEY







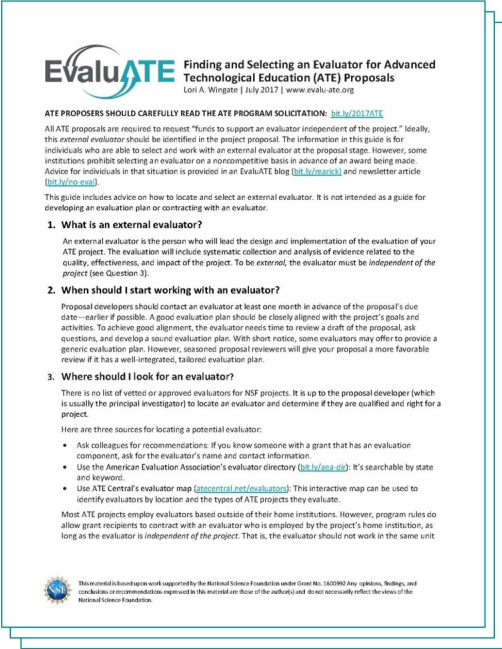
Evaluation Plan → 1 Evaluator



- Identify the project's evaluator
- Describe the evaluator's qualifications
- Refer to the evaluator's biosketch and letter of collaboration

RESOURCE

Finding and Selecting an Evaluator for ATE Proposals



Findings and Selecting an Evaluator for Advanced Technological Education (ATE) Proposals
Lori A. Wirgata | July 2017 | www.evaluate-ate.org

ATE PROPOSERS SHOULD CAREFULLY READ THE ATE PROGRAM SOLICITATION: bit.ly/evaluate

All ATE proposals are required to request "funds to support an evaluator independent of the project." Ideally, this external evaluator should be identified in the project proposal. The information in this guide is for individuals who are able to select and work with an external evaluator at the proposal stage. However, some institutions prohibit selecting an evaluator on a noncompetitive basis in advance of an award being made. Advice for individuals in that situation is provided in an EvaluATE blog (bit.ly/evaluate) and newsletter article (bit.ly/evaluate).

This guide includes advice on how to locate and select an external evaluator. It is not intended as a guide for developing an evaluation plan or contracting with an evaluator.

- 1. What is an external evaluator?**
An external evaluator is the person who will lead the design and implementation of the evaluation of your ATE project. The evaluation will include systematic collection and analysis of evidence related to the quality, effectiveness, and impact of the project. To be external, the evaluator must be independent of the project (see Question 3).
- 2. When should I start working with an evaluator?**
Proposal developers should contact an evaluator at least one month in advance of the proposal's due date—earlier if possible. A good evaluation plan should be closely aligned with the project's goals and activities. To achieve good alignment, the evaluator needs time to review a draft of the proposal, ask questions, and develop a sound evaluation plan. With short notice, some evaluators may offer to provide a generic evaluation plan. However, sooner proposal reviewers will give your proposal a more favorable review if it has a well integrated, tailored evaluation plan.
- 3. Where should I look for an evaluator?**
There is no list of vetted or approved evaluators for NSF projects. It is up to the proposal developer (which is usually the principal investigator) to locate an evaluator and determine if they are qualified and right for a project.
Here are three sources for locating a potential evaluator:
 - Ask colleagues for recommendations: If you know someone with a grant that has an evaluation component, ask for the evaluator's name and contact information.
 - Use the American Evaluation Association's evaluator directory (bit.ly/evaluate): It's searchable by state and keywords.
 - Use ATE Central's evaluator map (atecentral.net/evaluator): This interactive map can be used to identify evaluators by location and the types of ATE projects they evaluate.Most ATE projects employ evaluators based outside of their home institutions. However, program rules do allow grant recipients to contract with an evaluator who is employed by the project's home institution, as long as the evaluator is independent of the project. That is, the evaluator should not work in the same unit

This material is based upon work supported by the National Science Foundation under Grant No. 1600982 Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Evaluator Biographical Sketch Template for National Science Foundation (NSF) Proposals

This template was created by EvaluATE (evalu.ate.org). It is based on the National Science Foundation's guidelines for preparing biographical sketches for senior project personnel, which are available at <https://www.nsf.gov/bio/2012>. The information about what evaluators should include in Products and Synergistic Activities sections are EvaluATE's suggestions, not NSF requirements. The biosketch must not exceed two pages.

Evaluator's Name

PROFESSIONAL PREPARATION
(List academic degrees and any pertinent certificates.)

| Undergraduate Institution | Location | Major | Degree | Year |
|----------------------------------|----------|-------|-------------|------|
| Graduate Institution | Location | Major | Degree | Year |
| Postdoctoral Institution | Location | Area | Years | |
| Certificate-Granting Institution | Location | Area | Certificate | Year |

APPOINTMENTS
(List employment history in reverse chronological order.)

| Dates | Job Title | Employer |
|-------|-----------|----------|
|-------|-----------|----------|

PRODUCTS
(List up to ten products that demonstrate your experience and competence in evaluation and knowledge of the proposed project's discipline. Examples may include publications, reports, and evaluation tools. All products must be citable and accessible. Include full reference information, including URL, if available.)

SYNERGISTIC ACTIVITIES
(In paragraph form, list up to five examples that demonstrate your expertise in evaluation, especially as it pertains to the proposal. Examples may include ongoing or completed evaluations; development or adaptation of evaluation tools; leadership roles in the evaluation field; and invited lectures, presentations, or workshops on evaluation. If you have prior experience working in the proposer's discipline, describe that as well.)

RESOURCE

Evaluator Biographical Sketch Template for NSF Proposals

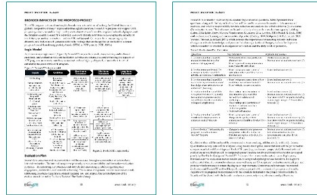
Questions?

Slides, videos, and resources:
www.evalu-ate.org/webinars/aug19

20



Evaluation Plan → ② Evaluation Questions



- List the key questions that the evaluation will address
- Include questions about both project implementation and outcomes
- Ensure that questions align with the project's goals and activities

What makes a good evaluation question?



Evaluative



Non-evaluative:

How many students did the project serve?




Evaluative:


What was the project's impact on program enrollment?

What makes a good evaluation question?

 Evaluative

 Reasonable

 **Unreasonable:**
Did the project increase manufacturing employment in the state?


 **Reasonable:**
To what extent did students served by the project find employment in the manufacturing sector?


What makes a good evaluation question?

 Evaluative

 Reasonable

 Specific

 **Vague:**
Did the project increase instructor effectiveness?

 **Specific:**
To what extent did participating instructors increase their knowledge about nanotechnology?


What makes a good evaluation question?


 Evaluative

 Reasonable

 Specific

 Answerable

 **Unanswerable:**
To what extent does the project affect long-term persistence in STEM careers?

 **Answerable:**
To what extent does the project affect students interest in pursuing a future career in STEM?

What makes a good evaluation question?

 Evaluative

 Reasonable

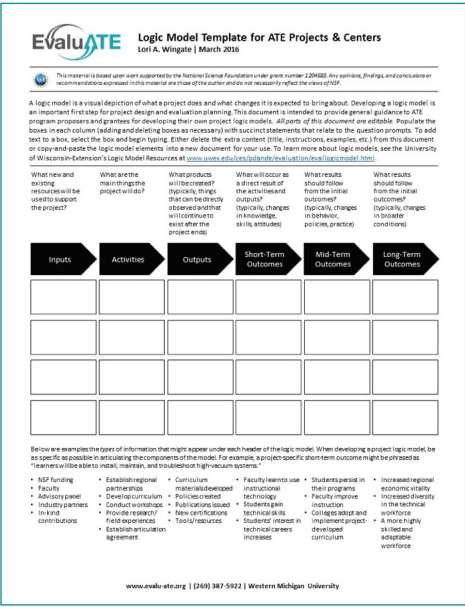
 Specific

 Answerable

 Complete

The slide titled "Logic Models" contains several diagrams and tables. At the top left, a flowchart shows the progression from **INPUTS** (e.g., NSF Funding, Industry advisory board) through **ACTIVITIES** (e.g., Develop course curriculum) to **OUTPUTS** (e.g., Course materials), **SHORT TERM OUTCOMES** (e.g., Students enroll in course), **MID TERM OUTCOMES** (e.g., Enrollment in engineering programs increases), and **LONG TERM OUTCOMES** (e.g., Regional demand for engineering technicians met). To the right of this flowchart are two large, complex tables with multiple columns and rows, likely representing detailed program components or data points. Below the flowchart is a large red banner with the text "Logic Models". At the bottom of the slide, there are two more tables: one on the left with columns for "Activities", "Outputs", "Short Term Outcomes", "Mid Term Outcomes", and "Long Term Outcomes"; and one on the right titled "DMU 1-12-13-2013 WQ41-Program" with columns for "Activities", "Outputs", "Short Term Outcomes", "Mid Term Outcomes", and "Long Term Outcomes".

The slide titled "PROJECT LOGIC MODEL" features a central flow diagram. It starts with a box labeled "ACTIVITIES" on the left, which points to a box labeled "SHORT-TERM OUTCOMES". From "SHORT-TERM OUTCOMES", an arrow points to a box labeled "MID-TERM OUTCOMES", which in turn points to a box labeled "LONG-TERM OUTCOMES". Below the "ACTIVITIES" box, a bracket labeled "EQs 1-2" is positioned under the text "Implementation". Below the "SHORT-TERM OUTCOMES" box, a bracket labeled "EQ 3" is positioned under the text "Outcome". Below the "MID-TERM OUTCOMES" box, a bracket labeled "EQ 4" is positioned under the text "Outcome". A large red text box at the bottom right of the slide states: "Important to include any additional questions of interest to stakeholders!".




RESOURCE
Logic Model Template
for ATE Projects

RESOURCE
Logic Model Template
for ATE Projects



RESOURCE
Logic Models: Getting
Them Right and Using
Them Well
(webinar recording and handouts)

RESOURCE
Logic Models: Getting
Them Right and Using
Them Well
(webinar recording and handouts)



Evaluation Questions Checklist for Program Evaluation

Lori Wingate and Daniela Schroeter

Evaluation questions identify what aspects of a program¹ will be investigated. They focus on the merit, worth, or significance² of a program or particular aspects of a program. Unlike survey questions, they are not intended to derive single data points. Evaluation questions help to define the boundaries of an evaluation that are consistent with evaluation users' information needs, opportunities and constraints related to data collection, and available resources.

The purpose of this checklist is to aid in developing effective and appropriate evaluation questions and in assessing the quality of existing questions. It identifies characteristics of good evaluation questions, based on the relevant literature and our own experience with evaluation design, implementation, and use.

Evaluation questions should be...

Evaluative

Evaluative questions call for an appraisal of a program or aspects of it based on the factual and descriptive information gathered about it. Questions should be framed so they will yield answers that:


- provide determinations of merit, worth, or significance, or enable evaluation users to readily reach such determinations on their own.
- directly inform decisions about the program (e.g., how to improve or modify it, whether to continue, discontinue, expand, or reconfigure it).

¹ A program is an "orchestrated initiative that dedicates resources and inputs to a series of activities intended to achieve specific process, product, services, output, and outcome goals" (Yarborough, Shulha, Hopson, & Caruthers, 2011, p. 293).

² Merit is "the excellence of an object as assessed by its intrinsic qualities or performance" (Yarborough et al., 2011, p. 289). Worth is "the value of an object in relationship to needs or identified purposes" (Yarborough et al., 2011, p. 293). Significance is "potential influence, importance, and visibility" (Stufflebeam & Coryn, p. 18).

RESOURCE

Evaluation Questions Checklist

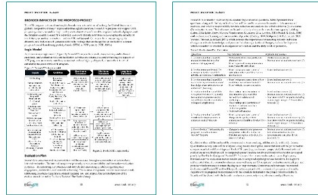


Western Michigan University
The Evaluation Center

Lori Wingate and Daniela Schroeter
Western Michigan University - 2016



Evaluation Plan → ③ Data



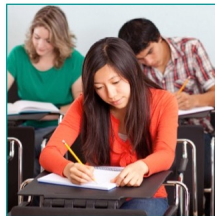
- What information will be used to answer the evaluation questions
- How the information will be obtained and from what sources
- Procedures for summarizing quantitative and qualitative data
- Procedures for interpreting findings to answer evaluation questions

Indicators



What will be measured in order to answer evaluation questions

Data Collection Methods



Obtaining information needed for the evaluation

Analysis




Transforming raw data into usable information

Interpretation




Translating findings into conclusions that address the evaluation questions


Indicators



Data Collection Methods



Analysis



Interpretation




It's OK to sacrifice some detail

Must convey there is a **CONCRETE PLAN** for collecting and using evaluation data

Data Matrix

Evaluation Question 3: To what extent and how are project activities impacting enrollment and persistence in the aviation program?

| Indicators | Data Sources and Methods | Analysis | Interpretation |
|--|----------------------------|---|--|
| Number of students in program who attended summer camp | Camp and admission records | Counts | Compare with project target of 5 per year |
| Number of students enrolled in program | Program records | Counts | Compare with project target of 5 per year |
| Students' opinions about AV 100 course | Survey | Descriptive statistics Inductive coding of qualitative data | Compare results with rubric to judge degree of influence |
| Graduating students' perceptions of what influenced decisions about their program of study | Focus group with students | Thematic coding to determine factors that increase or suppress interest in aviation program | Identify which, if any, factors can be influenced by the program |



Evaluation Data Matrix Template
Lori Wingate | July 2017

This material is based upon work supported by the National Science Foundation under grant number 1600992. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of NSF.

An evaluation plan should include a clear description of what data will be collected, from what sources and how, by whom, and when, as well as how the data will be analyzed. Placing this information in a matrix helps ensure that there is a viable plan for collecting all the data necessary to answer each evaluation question and that all collected data will serve a specific, intended purpose. The table below may be copied into another document, such as a grant proposal, and edited/expanded as needed. An example is provided on the next page.

| Indicator | Data Source and Methods | Responsible Party | Timing | Analysis Plan | Interpretation |
|-----------|-------------------------|-------------------|--------|---------------|----------------|
| | | | | | |

If space is limited, such as in a National Science Foundation proposal, fewer columns may be used. It is most critical to include the evaluation questions, indicators, data sources and methods, and timing.

DEFINITIONS

Evaluation Questions are overarching questions about a project's quality or impact. The number of evaluation questions depends on the scope and purpose of the evaluation; 3 to 7 questions is typical. Questions should address both project implementation and outcomes.

Indicators are specific pieces of information about an aspect of a project—basically, what will be measured in order to answer the evaluation questions. It is useful to use multiple indicators to address an evaluation question, including qualitative and quantitative data.

Data Sources are the entities from which data will be collected. Typical data sources for ATE evaluations include project personnel, students, graduates, faculty, project partners, business and industry representatives, institutional records, website usage statistics, and teaching and learning artifacts.

Data Collection Methods are the means by which information will be gathered. Typical methods include surveys, focus groups, interviews, observations, and institutional database queries.

Responsible Parties are the individuals or organizations tasked with collecting the needed information. In many cases, data collection requires cooperation among multiple entities. For example, an external evaluator may be responsible for administering a survey, but a member of the project staff may need to supply the contact information.

Timing identifies when and how frequently data will be collected (e.g., at events, quarterly, annually). It is important to identify approximately when data collection will take place to ensure the information will be obtained when needed for reporting purposes and decision making and that the data collection schedule is conducive to other things taking place in project's context (e.g., other major data collection activities, semester schedules).

Analysis Plan how the quantitative and qualitative data will be summarized into meaningful, usable information.

Interpretation is how the analyzed data will be used to reach conclusions related to the evaluation questions.

evalu-ate.org | (269) 387-5920 | Western Michigan University


RESOURCE

Evaluation Data Matrix





Evaluation Plan → **4 Communication and Use**



- Identify what evaluation reports will be prepared
- Identify the frequency with which the evaluator will communicate with project team
- Describe how evaluation results will be shared with external audiences

ATE-Specific Review Criteria Related to Evaluation



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

Will the project evaluation inform others through the communication of results?

Planning for Evaluation Communication and Use



Formal reporting should occur at least annually

Project team should engage with evaluator regularly

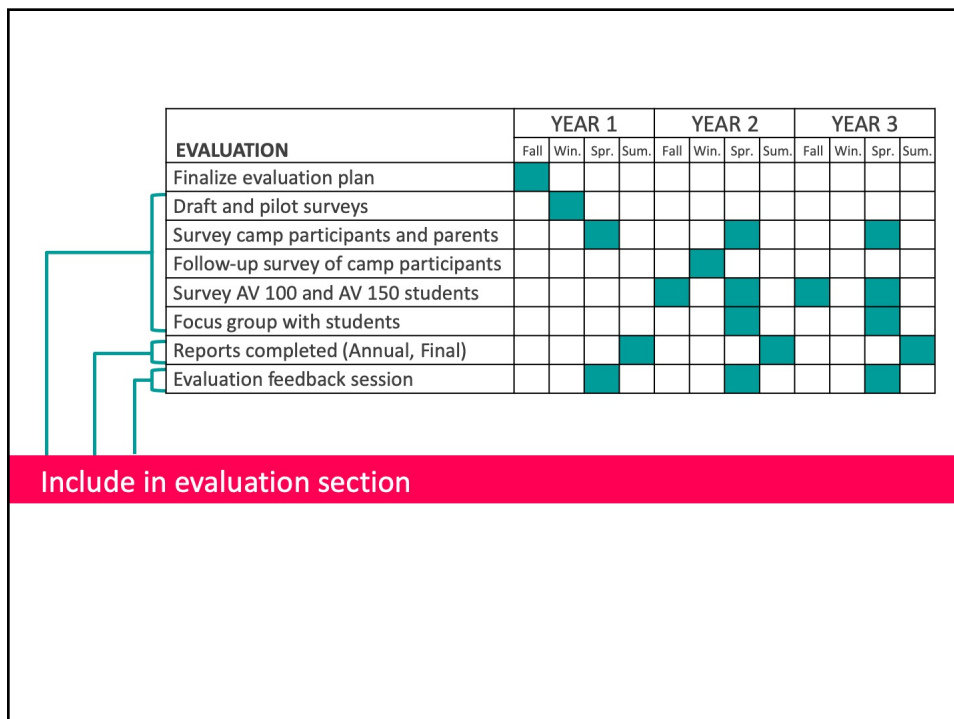
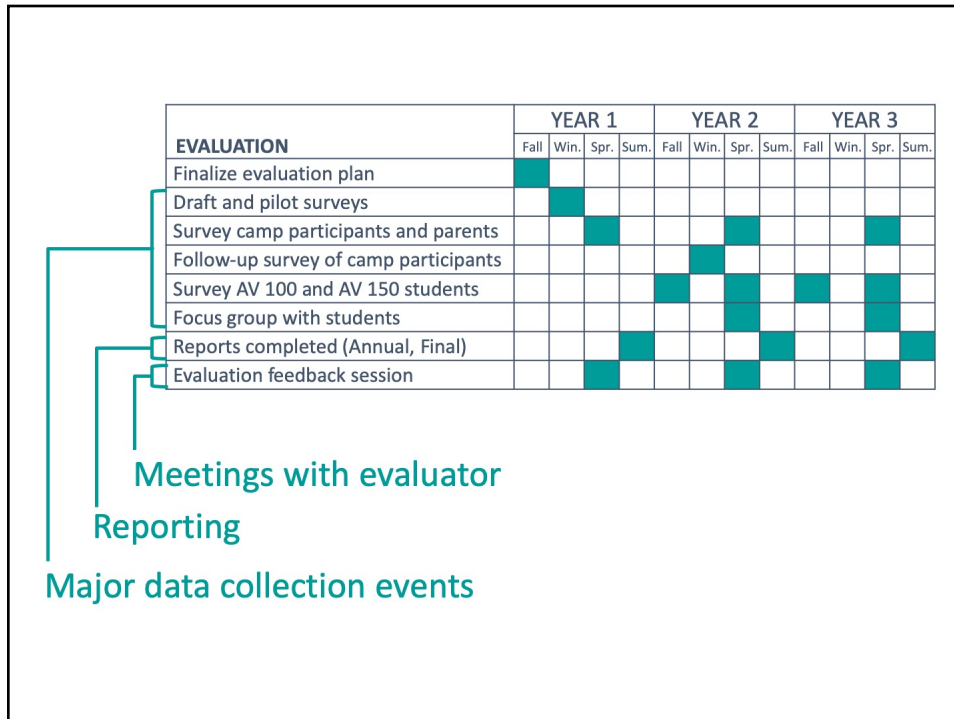
Show commitment to using results for improvement



Evaluation Plan → **5 Timeline**

- Identify when key evaluation activities will occur in order to produce timely information

Two small, side-by-side thumbnail images of evaluation plan documents. The left document is titled "EVALUATION PLAN" and the right document is titled "EVALUATION PLAN". Both documents contain text and tables, but the content is too small to read.



PROJECT DESCRIPTION | EvaluATE

Timeline
The timing of key tasks and deliverables is shown in Table 3.
Table 3. Project Timeline (shown in quarter-year increments)

| RESEARCH | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 | YEAR 5 |
|---|--------|--------|--------|--------|--------|
| Study 1: Evaluation Task Framework Validation | | | | | |
| Finalize design and recruit study participants | | | | | |
| Data collection and analysis | | | | | |
| Publish | | | | | |
| Study 2: Evaluator Recruitment | | | | | |
| Finalize design and recruit committee members | | | | | |
| Data collection and analysis | | | | | |
| Publish | | | | | |
| Study 3: Strategies for Measuring EDI in ATE | | | | | |
| Finalize design and recruit participants | | | | | |
| Data collection and analysis | | | | | |
| Publish | | | | | |
| Study 4: Evaluation Use in the ATE Program | | | | | |
| Finalize study design | | | | | |
| Survey data collection and analysis | | | | | |
| Site selection and analysis | | | | | |
| Publish | | | | | |
| TRAINING & TECHNICAL ASSISTANCE (These training-related activities are already funded under current grant through semester 2018, so they are not listed here until expiration of current grant) | | | | | |
| Conduct one webinar per quarter | | | | | |
| Develop FAQ and job aids | | | | | |
| Conduct workshop at ATE PI Conference | | | | | |
| Develop guidance materials for coaches | | | | | |
| Convene coaches for orientation | | | | | |
| Deploy coaches | | | | | |
| ATE EVALUATION NETWORK FACILITATION | | | | | |
| Fund ATE evaluations to attend ATE PI conference | | | | | |
| Host networking reception at ATE PI conference | | | | | |
| Select and coordinate ATE evaluation fellows | | | | | |
| Host monthly web chats | | | | | |
| Host biannual ATE Evaluation Summit | | | | | |
| EVALUATION | | | | | |
| Finalize detailed evaluation plan | | | | | |
| Conduct baseline survey of EvaluATE's audience | | | | | |
| Conduct interviews with coaches and TA recipients | | | | | |
| Reports completed (TA, survey, research, final) | | TA | IS | TA | IS |
| DISSEMINATION | | | | | |
| Dissemination at conferences | | | | | |
| Publish quarterly newsletters | | | | | |

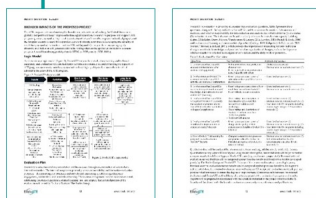
OR within overall project timeline


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Evaluation Plan (1-2 pages)

- 1 Evaluator
- 2 Evaluation Questions
- 3 Data
- 4 Communication and Use
- 5 Timeline

1-2 pages





EvaluATE ATE Proposal Evaluation Plan Template
Lori A. Wingate | July 2019

This template is for use in preparing evaluation plans for inclusion in proposals to the National Science Foundation's Advanced Technological Education (ATE) program. It is based on the ATE Evaluation Planning Checklist (see [http://www.evaluate-ate.org/evaluation-checklist](#)), also developed by EvaluATE. It is aligned with the evaluation guidance included in the 2019 ATE Program Solicitation (see [http://www.evaluate-ate.org/ate-program-solicitation](#)). All proposals and evaluators should read the solicitation in full.

How to use this template: Replace the descriptions of what should go in each section with relevant details about your proposed project's evaluation. Copy the text into your ATE proposal. The evaluation plan should comprise one to two pages of your 15-page Project Description.

This material is based upon work supported by the National Science Foundation under Grant No. 1802992. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.

Evaluation
Identify by name the person(s) who will lead the external evaluation of the project. Briefly describe their academic training and professional experience that qualifies them to serve as external evaluator. Refer to the evaluator's biosketch and commitment letter and include those documents with the proposal's Supplementary Documents.

Evaluation Questions. Identify the focus of the evaluation by listing the evaluation questions. The questions should align with the project's purpose and address both implementation and outcomes. Examples of outcomes of interest to the ATE program include, but are not limited to, changes related to student learning, persistence, retention, graduation, and employment; faculty knowledge and pedagogical skills; broadening participation in STEM; meeting workforce needs; enhancing institutional capacity; and advancing knowledge about technician education. If the project has a logic model, make sure the evaluation questions align with the logic model components.

Data Collection and Analysis. For each evaluation question, identify what will be measured, how the data will be collected and from what sources, and when. If specific published instruments will be used for data collection, describe and cite them (and include in References Cited section of proposal). Describe how data will be analyzed so that the evaluation questions can be answered. Placing this information in a table helps show linkages between the evaluation questions and the data, such as shown below (see also EvaluATE's Data Collection Planning Matrix):

| Indicator | Data Source & Collection Method | Timing | Analysis | Interpretation |
|---|---|-----------------------------------|--|---|
| [what will be measured – ideally there will be more than one indicator per evaluation question] | [where the data will come from and how it will be obtained] | [when the data will be collected] | [how the qualitative and quantitative data will be transformed and summarized into usable information] | [procedures for using findings to answer the evaluation questions and reach evaluative conclusions] |

Reporting and Use. Identify the deliverables that will be produced by the evaluation after the project is funded, such as a detailed evaluation plan, data collection instruments, reports. Identify when reports will be provided to the project and how the results will be used to inform project improvement.

RESOURCE

Evaluation Plan Template









2 Integrating
Evaluation
Throughout a Proposal




Lyssa

Beyond the Evaluation Plan



-  Results from Prior NSF Support
-  Budget and Budget Justification
-  Data Management Plan
-  References

Beyond the Evaluation Plan

Results from Prior NSF Support

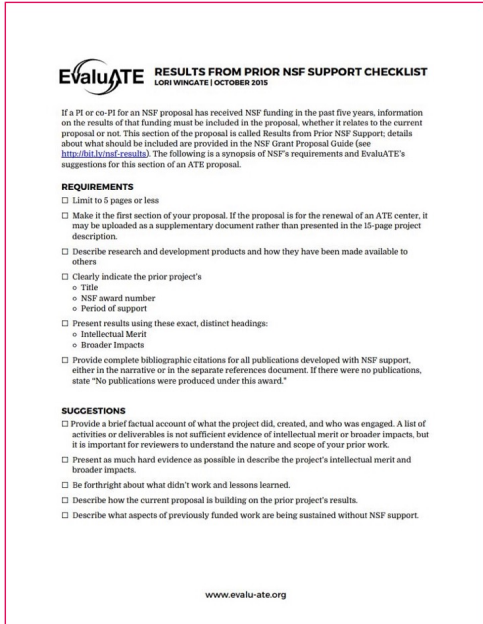


This subsection must contain **specific outcomes and results**, including metrics to demonstrate the impact of project activities.

-  **Intellectual Merit**
advancement of knowledge
-  **Broader Impacts**
benefit to society

RESOURCE

NSF Prior Support Checklist



Evaluated RESULTS FROM PRIOR NSF SUPPORT CHECKLIST
LORI WINGATE | OCTOBER 2015

If a PI or co-PI for an NSF proposal has received NSF funding in the past five years, information on the results of that funding must be included in the proposal, whether it relates to the current proposal or not. This section of the proposal is called Results from Prior NSF Support; details about what should be included are provided in the NSF Grant Proposal Guide (see http://bit.ly/nsf_results). The following is a synopsis of NSF's requirements and EvaluATE's suggestions for this section of an ATE proposal.

REQUIREMENTS

- Limit to 5 pages or less
- Make it the first section of your proposal. If the proposal is for the renewal of an ATE center, it may be uploaded as a supplementary document rather than presented in the 15-page project description.
- Describe research and development products and how they have been made available to others
- Clearly indicate the prior project's
 - Title
 - NSF award number
 - Period of support
- Present results using these exact, distinct headings:
 - Intellectual Merit
 - Broader Impacts
- Provide complete bibliographic citations for all publications developed with NSF support, either in the narrative or in the separate references document. If there were no publications, state "No publications were produced under this award."

SUGGESTIONS

- Provide a brief factual account of what the project did, created, and who was engaged. A list of activities or deliverables is not sufficient evidence of intellectual merit or broader impacts, but it is important for reviewers to understand the nature and scope of your prior work.
- Present as much hard evidence as possible in describe the project's intellectual merit and broader impacts.
- Be forthright about what didn't work and lessons learned.
- Describe how the current proposal is building on the prior project's results.
- Describe what aspects of previously funded work are being sustained without NSF support.

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Beyond the Evaluation Plan

Budget and Budget Justification

Beyond the Evaluation Plan


Budget and Budget Justification



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

Beyond the Evaluation Plan

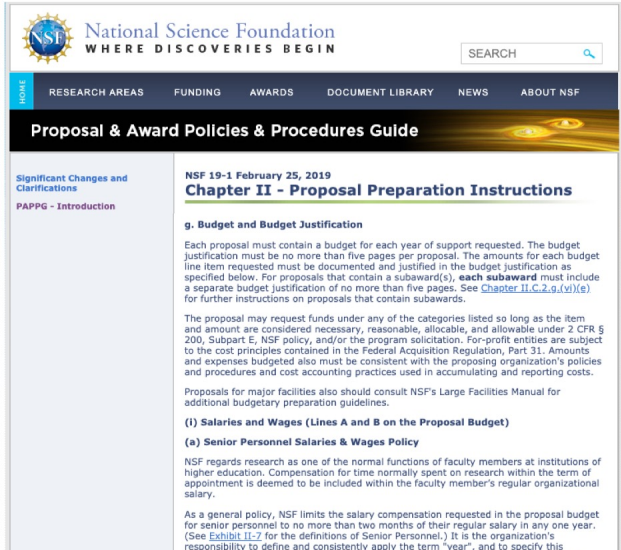
Budget and Budget Justification



A donut chart with a small teal slice and a question mark percentage symbol next to it.

Beyond the Evaluation Plan

Budget and Budget Justification



NSF 19-1 February 25, 2019
Chapter II - Proposal Preparation Instructions

g. Budget and Budget Justification

Each proposal must contain a budget for each year of support requested. The budget justification must be no more than five pages per proposal. The amounts for each budget line item requested must be documented and justified in the budget justification as specified below. For proposals that contain a subaward(s), each subaward must include a separate budget justification of no more than five pages. See [Chapter II.C.2.g.\(vi\)\(e\)](#) for further instructions on proposals that contain subawards.

The proposal may request funds under any of the categories listed so long as the item and amount are considered necessary, reasonable, allocable, and allowable under 2 CFR § 200, Subpart E, NSF policy, and/or the program solicitation. For-profit entities are subject to the cost principles contained in the Federal Acquisition Regulation, Part 31. Amounts and expenses budgeted also must be consistent with the proposing organization's policies and procedures and cost accounting practices used in accumulating and reporting costs.

Proposals for major facilities also should consult NSF's Large Facilities Manual for additional budgetary preparation guidelines.

(1) Salaries and Wages (Lines A and B on the Proposal Budget)

(a) Senior Personnel Salaries & Wages Policy

NSF regards research as one of the normal functions of faculty members at institutions of higher education. Compensation for time normally spent on research within the term of appointment is deemed to be included within the faculty member's regular organizational salary.

As a general policy, NSF limits the salary compensation requested in the proposal budget for senior personnel to no more than two months of their regular salary in any one year. (See [Exhibit II-7](#) for the definitions of Senior Personnel.) It is the organization's responsibility to define and consistently apply the term "year", and to specify this definition in the budget justification. This limit includes salary compensation received.

Beyond the Evaluation Plan

Budget and Budget Justification

- 1 Identify hourly rate of pay for evaluator
- 2 Justify time required for evaluator
- 3 Outline their main tasks and deliverables

Beyond the Evaluation Plan

Data Management Plan

Requirements

- Types of data and other materials to be produced
- Format of the data
- Policies for access and sharing data
- Policies for use of data by others
- Plans for archiving data for preserving access

Include
evaluation
data

Beyond the Evaluation Plan

References Cited

Include references to
evaluation literature

Justify evaluation
approach

Justify use of
instruments and
methods

REFERENCES

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Materials

EvaluATE Evaluation Plan Checklist for ATE Proposals
Lori A. Wingard | August 2018 | FIELD TEST VERSION

This checklist provides information on what should be included in evaluation plans for National Science Foundation (NSF) Advanced Technological Education (ATE) programs. It certifies that the most recent ATE program solicitation (<https://www.nsf.gov/ate>) for direct and proposed submission requirements.

Evaluation Plan
ATE proposals must include a substantive "Evaluation Plan" within the 30-page EvaluATE requirements that one to two pages be dedicated to the evaluation plan before the deadline.

1. Evaluator

- Identify the project's evaluator by name and organization.
- Specify the evaluator's qualifications, including their experience and education.
- Refer to the evaluator's biosketch and letter of collaboration and include it as an attachment.
- If the evaluator is an employee of the project's host institution, explain the independence from the project (how should not work in the same department or supervisor of project personnel).
- If the project is not institution-led, specify that prohibits selecting an evaluator if the project is not institution-led.
- Specify the institutional plans that show that there are no conflicts of interest.
- Describe how an evaluator will be selected after the award is made.

2. Evaluation Questions

- List key questions clearly, about three to seven—that the evaluation project's quality, effectiveness, and/or impact.
- Include questions about both project implementation (what the project is doing) and about the project's impact.
- Ensure that the questions align with the project's goals and activities.

3. Data

- Identify what information will be used to answer each evaluation question (e.g., research, data, etc.).
- Describe the methods used to collect data.
- Identify how the information will be gathered and from what sources.
- If possible, explain sampling and use of comparison or control groups.
- If using existing data collection instruments, include citations and justify their use.
- Describe the data collection instruments, including data collection methods.
- Identify the procedures that will be used to summarize quantitative and qualitative data (e.g., descriptive statistics, inferential tests, regression, induction or induction coding).
- Identify the procedures for interpreting findings to answer the evaluation questions (e.g., comparison with benchmarks, review of content data, large-scale surveys, control group, surveys, participants' interpretation sessions).



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