

THE ATE SURVEY

A Wealth of Data for
STEM Grant Seekers



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The ATE Survey report, released annually, contains more than 150 data points submitted by roughly 300 principal investigators (PIs) of projects supported by the National Science Foundation (NSF)'s Advanced Technician Education (ATE) program. The findings cover a wide range of ATE project activities and outputs. This guide demonstrates how ATE project principal investigators and grant seekers can capitalize on this treasure trove of data to strengthen their proposals to NSF's ATE funding program.

Navigating the ATE proposal development process can be daunting. ATE grantees and grant seekers can use the ATE Survey to inform project planning, proposal writing, and evaluation. This guide introduces the ATE Survey and provides real-world examples and strategies for effectively using the data.

A detailed understanding of ATE projects and activities can help grant seekers:

1. Analyze the landscape of ATE and how the funding program can be an opportunity for their institution and students,
2. Design a project that aligns ATE resources and opportunities with community needs, and
3. Catalyze support for the potential project from institutional leadership and industry partners.

This guide will cover:

How to analyze the landscape of the NSF ATE program using ATE Survey findings.

- What are the available disciplines and activities?
- What resources are already available in the ATE community?

How to use survey findings to inform community resources and needs assessment.

- Who can a project consult?

Inspiring creative ideas for activities from ATE Survey findings.

- What data links community needs to potential ATE activities?

Catalyzing support within your institution and community using ATE Survey findings.

- What findings can influence institutional leaders to support your project?
- How can findings be rapidly presented to facilitate industry collaboration and leadership support?



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PURPOSE OF THIS GUIDE

This guide introduces the ATE Survey and uses samples of its findings to illustrate strategies for effectively utilizing the data, particularly for two-year colleges seeking funding for advanced technician education projects.

For a comprehensive description of ATE Survey findings, readers should refer to the 2025 ATE Survey Report, available at: bookdown.org/atesurvey/ate_survey_report_2025/.

The guide uses a hypothetical American community college with characteristics drawn from real ATE projects. While the hypothetical example is realistic, details have been altered and fictionalized. Individual project-level data gathered by the ATE Survey is confidential.

INTENDED AUDIENCE

This guide is intended for institutions considering applying to the National Science Foundation's ATE program, whether they currently have an ATE project and are considering developing a new one, or they are new to the ATE community.

The full ATE Survey report is intended for additional audiences: faculty of current ATE projects and staff at their institutions, the National Science Foundation, ATE project evaluators, and higher education researchers. The needs of these audiences are outside the scope of this guide; however, these members of the ATE community are highly encouraged to read the full ATE Survey report or to browse the EvaluATE project's website for a variety of resources that will be beneficial to their initiatives.



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ABOUT THE ATE SURVEY

The ATE Survey report summarizes data gathered in the 2025 survey of ATE principal investigators (PIs). EvaluATE, the evaluation hub for the ATE program, located at The Evaluation Center at Western Michigan University, has conducted this survey annually since 2000. Included in the ATE Survey report are characteristics of ATE awards (referred to as projects) and their activities and achievements during the 2024 calendar year.

The ATE Survey report is an important source of information on the ATE program as a whole. It is used by the National Science Foundation to advocate to the U.S. Congress for continued allocations to the ATE program, but is freely available to anyone interested in advanced technological education, including educational institutions, higher education researchers, and program evaluators.

The ATE Survey report is distinct from the annual reports and evaluation reports of individual ATE projects. However, both ATE projects and their evaluators can benefit from incorporating ATE Survey findings into their reporting. Guidance on these approaches is outside the scope of this guide.

The 2025 ATE Survey findings are available as a web-navigable report and a web-based dashboard. EvaluATE staff are also available to help you navigate the findings with additional disaggregation or guidance.

Readers can easily navigate through ATE Survey findings in this web-based report.

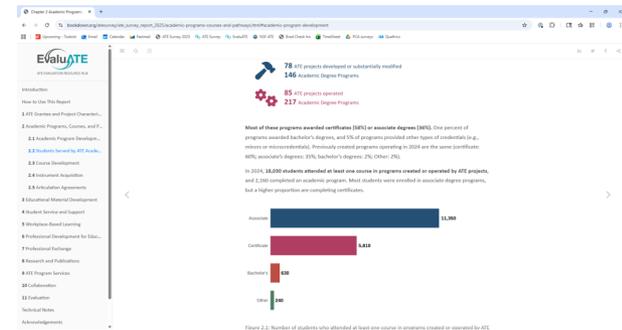


Figure 1. A screenshot of the 2025 ATE Survey report, available at: https://bookdown.org/atesurvey/ate_survey_report_2025/

The 2025 survey was a census of ATE principal investigators with active grants ($N = 312$). Ninety-four percent of PIs ($n = 294$) responded to the survey. The survey included sections about grantee characteristics and practices, evaluation, collaboration, and a variety of activity types. Grantees were asked to complete sections that pertained to their work.



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Hypothetical Case Example

GREAT NORTHERN COMMUNITY COLLEGE

Great Northern Community College (GNCC) is a hypothetical American two-year institution inspired by a real community. GNCC is located in the hypothetical state of New Ariel, where the unemployment rate exceeds the national average and the educational attainment rank is below the national average.

GNCC has established numerous industry partnerships for all its STEM programs, and representatives have anecdotally reported that GNCC graduates are well prepared for employment in their respective fields. A survey from last year indicated that most GNCC graduates find employment within their field within a year.

GNCC is developing a strategy to capitalize on these strengths to expand opportunities in New Ariel. That strategy includes securing additional funding for advanced technological education that trains New Ariel students to enter or advance in fields with higher average income and greater job security and intellectual fulfillment. GNCC's leadership believes the ATE program is its best candidate to fund an expansion of its existing advanced technological programs.

The top employing industries in New Ariel are:



Mining



Biotechnology



Tourism

Research shows that community college graduates are more likely to seek employment in their local economies than elsewhere (Rothwell, 2015). A biotech ATE project could be a good opportunity for GNCC.

In fact, GNCC already has an Associate of Applied Science in Biotechnology degree program. It could be a candidate for an ATE grant that would fund new activities for deeper impacts for GNCC students.



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1 ANALYZING THE ATE LANDSCAPE

Like all ATE project leadership, GNCC's ATE grant seekers will benefit from understanding how they fit into the larger ATE program. [Successful ATE proposals demonstrate knowledge of the ATE program.](#) While every ATE applicant should read and closely follow the ATE solicitation, the ATE Survey report is the only document that offers a perspective on the ATE program as a whole, including existing supports, previously created materials, and program-level context.

GNCC grant seekers can lend credibility to their proposal by clearly and concisely describing the ATE program and [citing ATE Survey report findings](#) within their proposal. This will also strengthen their [requests for support from GNCC's leadership and community.](#) While documents from NSF broadly offer funding opportunities, only the ATE Survey report describes how the program is currently operating, which can help justify continuing or replicating project activities, or innovating something entirely new.

Initially, GNCC needs to understand the range of disciplines in the ATE community. The ATE solicitation alone does not limit the STEM disciplines in which ATE projects operate. GNCC staff examine Figure 2 and see that ATE regularly funds biotechnology projects and that that discipline is around the middle of the pack in terms of the number of projects funded (13%). As a result, they recognize the need to be cautious not to duplicate the work of other biotechnology projects; they must either innovate something new or assess whether there is an opportunity or benefit to replicate an aspect of an existing program in a way that responds to needs in their community in New Ariel. GNCC also decides that activities in more popular fields, such as advanced manufacturing, could be replicated in biotechnology. They decide to research existing biotechnology projects on ATE Central's online repository and to use disaggregated ATE Survey report findings to identify opportunities that could be replicated in biotechnology and in New Ariel.



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ATE project disciplines are diverse, with bio and chemical technologies making up 13% of projects in 2024.

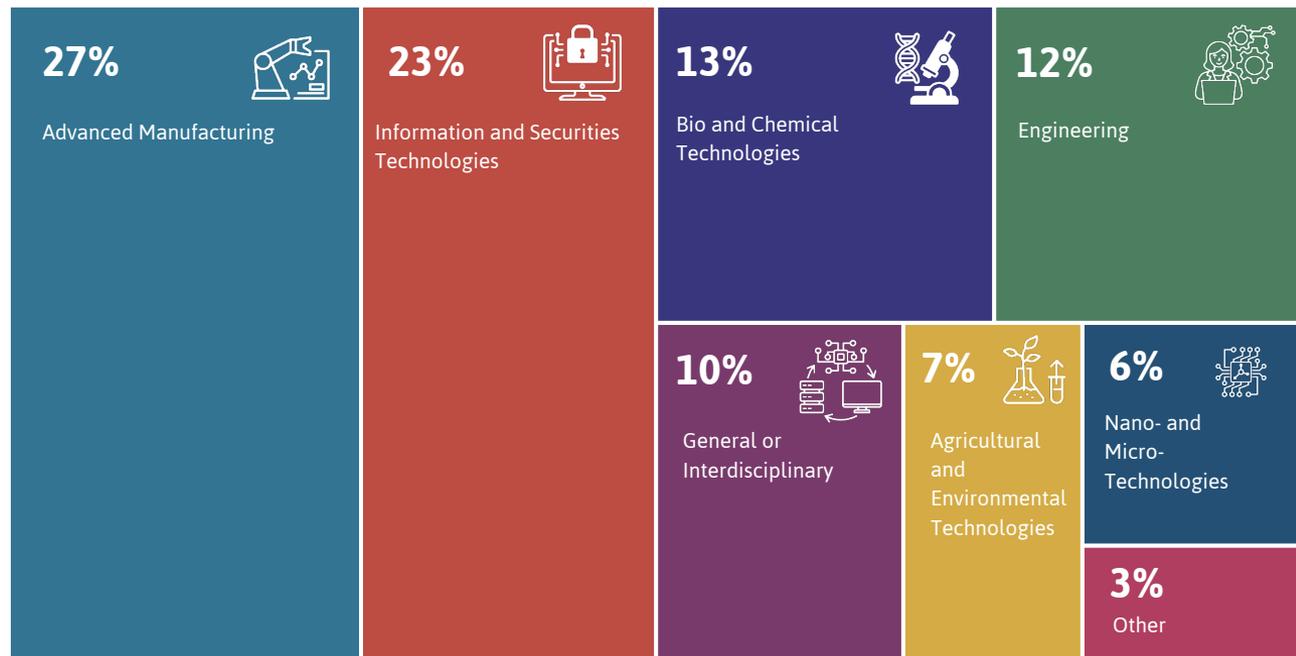


Figure 2. STEM Disciplines of ATE Projects Active in 2024 ($n = 294$)



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The ATE solicitation does not limit the types of activities that projects can propose; in fact, it encourages innovation. Project activities in the ATE Survey report should be considered not prescriptive but descriptive.

However, by analyzing the landscape of ATE activities in Figure 3, GNCC can see that projects in the program and specifically in the biotechnology discipline are fairly concentrated in five areas (educational materials development, course development, professional development, program development, and workplace-based learning). GNCC's proposed activities will respond to their community's assets and needs, but **incorporating findings on the frequency of program activities will lend credibility** to their proposal by demonstrating that they have analyzed their funding opportunity and designed their project activities strategically. Researching the current patterns within the funding program will help them decide if ATE is a fit for their institution and how the program aligns with their existing project.

Presenting the current landscape of ATE activities may **pique the interest of community members or local employers** who will benefit from a new project, while GNCC emphasizes that they and NSF remain open to innovation beyond the existing activities.

GNCC already has an Associate of Applied Science in Biotechnology program, so **they want to be sure they can use ATE to augment their current program, not duplicate it**. Here, they can see that program development is a common activity within ATE biotechnology projects, but many other activities, such as a workplace-based learning or student mentoring initiative, could also benefit their existing program. At this stage, they are not yet deciding on their project activities; instead, they are analyzing the landscape of the grant program.



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ATE and biotechnology projects are diverse, but many **ATE biotechnology projects** engage in developing educational materials, courses, professional development opportunities for educators, and workplace-based learning opportunities for students.

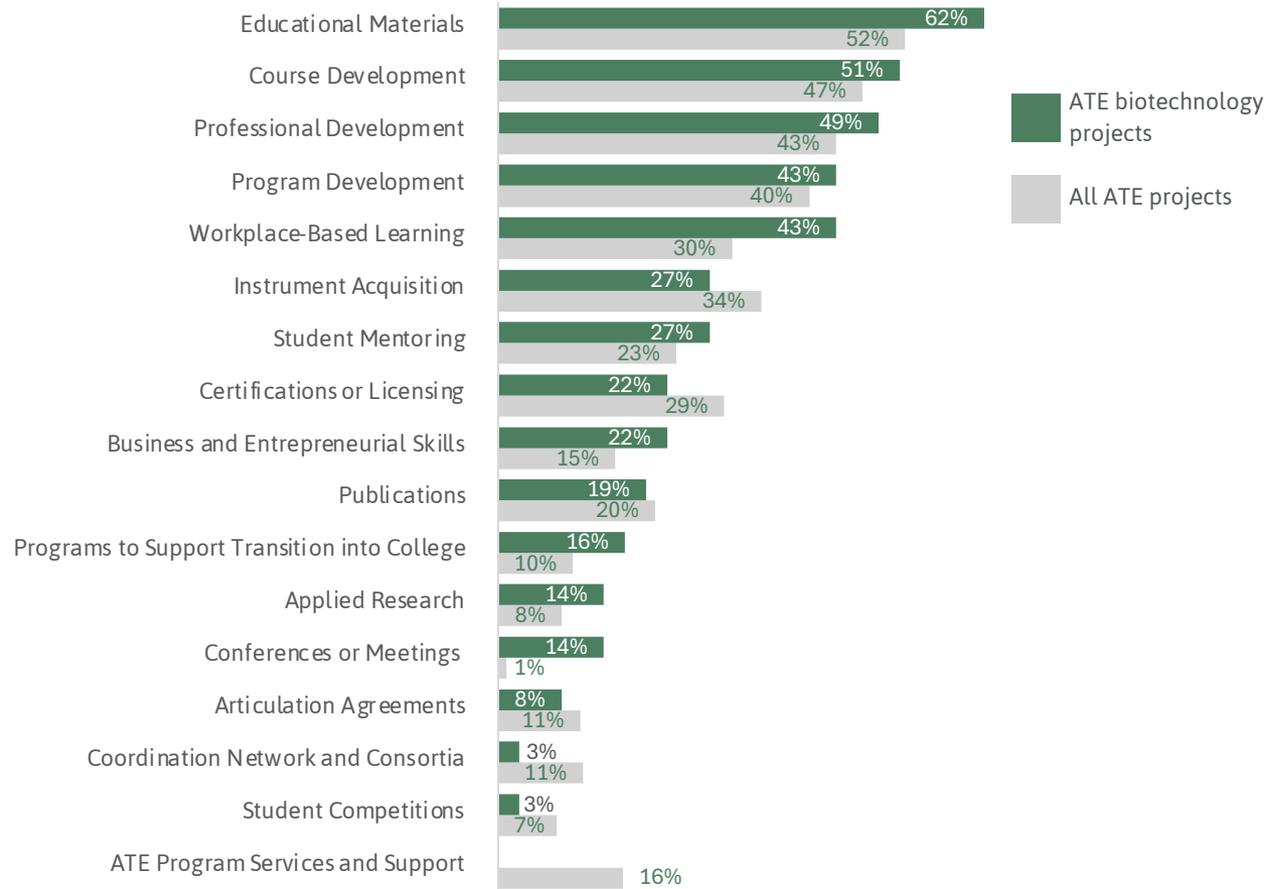


Figure 3. ATE Project Activities in 2024 (n = 294)



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ATE COMMUNITY RESOURCES

The ATE Survey report also provides information on resources developed by ATE projects that are available for other projects to use. In fact, educational materials development is the most common activity in ATE.

One hundred twenty-seven ATE projects developed or modified over 5,460 educational materials in 2024. These materials are disseminated in various ways, but the most common vectors are conferences and the ATE Central website.

One hundred twenty-seven ATE projects developed or modified over 5,460 educational materials in 2024.



1,360
Modules



1,030
Assessments



650
Lessons
Plans



590
Lab
Experiments



400
Course
Curricula



220
Case Studies

Figure 4. Educational Materials Created in 2024, by Type. ATE projects also developed 1,240 other types of educational materials including videos, interactive simulations, program curriculum, instructor guides, and textbooks. (n = 127)

ATE biotechnology programs produced a total of 357 educational materials in 2024. By acknowledging that these resources are available, GNCC can demonstrate that they will be a good steward of ATE funding by taking advantage of existing materials.

Those 357 materials included only six videos and four interactive simulations, and no textbooks. Educational videos are essential to the post-COVID digital transformation in higher education (Rahman et al., 2024). GNCC’s biotechnology faculty will do an

additional analysis to determine if such materials can augment the materials already used in their AAS program. Materials previously created by ATE projects are often archived on ATE Central’s website. When GNCC begins community consultations, they can determine whether creating new biotechnology educational videos will benefit their students. **If they decide that New Ariel students would benefit, they can show in their proposal that only a few videos already exist in their field.**



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PROFESSIONAL DEVELOPMENT FOR EDUCATORS

While the most common topics for professional development may not be relevant to projects in all disciplines, training in **pedagogy and employability skills may benefit GNCC's faculty regardless of the trainers' field**. Many of GNCC's faculty are working biotechnology technicians with advanced training in their disciplines but limited background in adult learning. There are many professional development opportunities within ATE that GNCC can access. Again,

acknowledging the projects that already exist in the ATE program lends credibility to GNCC's proposal in the eyes of both NSF and GNCC leadership, who will be looking for efficient, cost-effective projects. GNCC can directly cite the ATE Survey report in their proposal to demonstrate that they have researched all available opportunities to ensure their project's success.

ATE projects provide professional development training for educators on a range of topics, most often industry-specific knowledge or skills.

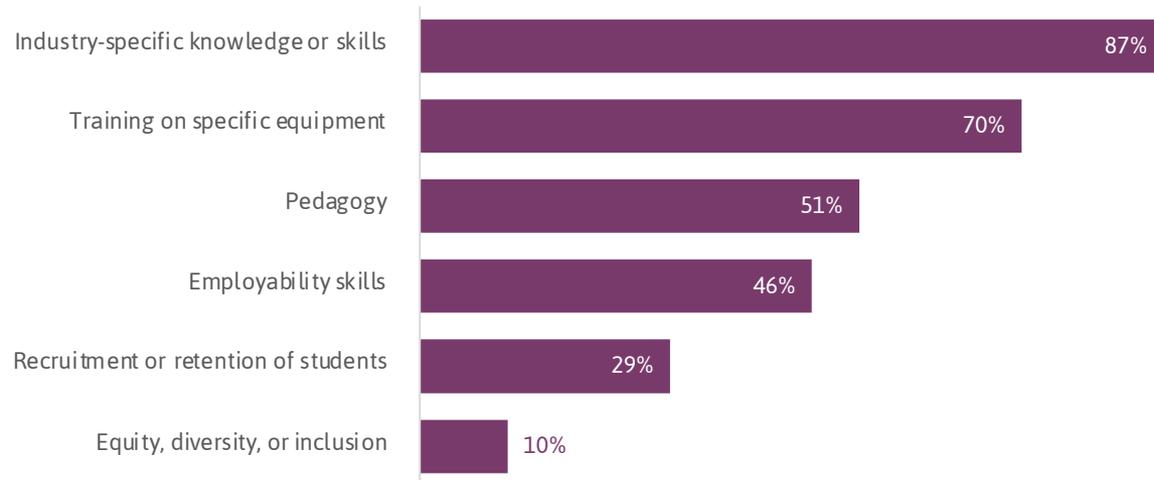


Figure 5. Professional Development Topics in 2024 (n = 127)



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2 ASSESSING COMMUNITY RESOURCES & NEEDS

Before they begin designing a new ATE project, GNCC needs to consult with their community to ensure the project aligns with existing assets and needs. The ATE Survey report offers them ideas on whom to consult.

GNCC's faculty is already scheduling focus groups with current students to understand which resources in their community are already supporting their success and what their additional needs are.

GNCC's faculty know that local industry is a key interest holder in their program, but they also learn from the ATE Survey report that ATE projects have a variety of collaborators. They know that GNCC does not currently have relationships with local K–12 school systems, so they decide to include them in their community assessment.

ATE projects work with a variety of collaborators, most prominently business and industry.

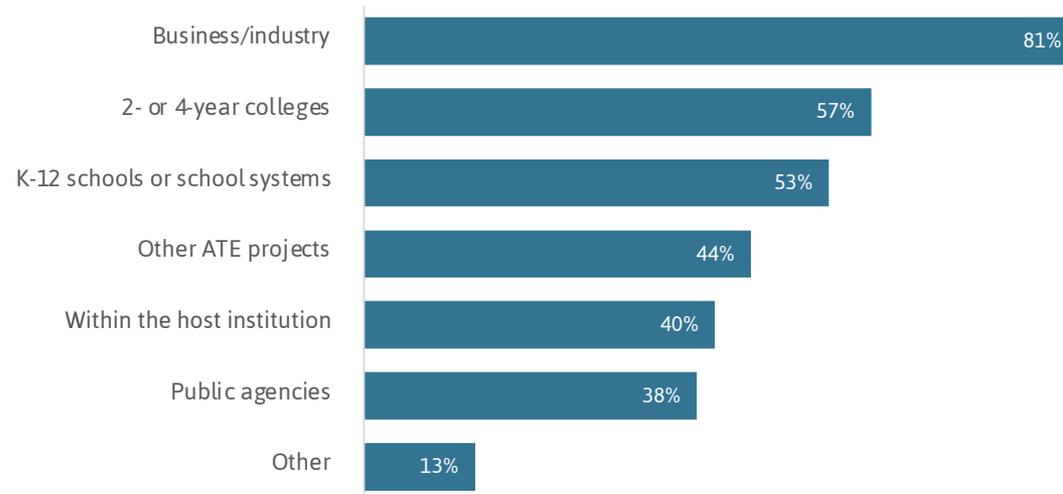


Figure 6. Types of ATE Collaborators in 2024 (*n* = 294)



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The consultation with students reveals:

- Students entering GNCC have many community supports for their success, including family and cultural commitments to education, and encouragement from a large religious institution.
- Faculty are respected as experts in their field.
- Many students struggle to complete schoolwork because they are also working and caring for families.
- Many students feel unprepared for the fast pace and intensity of advanced technological education.



The consultation with local industry reveals:

- GNCC graduates have sufficient knowledge of biotechnology to work in local industry.
- GNCC graduates have knowledge of the specific technology used in local industry.
- GNCC graduates lack soft skills needed for team-based roles.
- GNCC graduates are less prepared for problem solving and innovation.



The consultation with K–12 school systems reveals:

- Secondary school students in New Ariel are generally unaware of opportunities in advanced technological careers.
- Secondary school students in New Ariel demonstrate critical thinking and problem-solving skills below the national average.



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3 SPARKING CREATIVE ACTIVITY IDEAS

The findings in the ATE Survey report are primarily quantitative; however, the questionnaire does collect qualitative descriptions of highlights from each project, and a selection of these are presented in the report. GNCC’s faculty is pleased to find this quotation in the report:

Our BILT has discussed the need for a focus on employ-ability skills. The number one issue we hear from our industry partners is equipping students with the soft skills needed to succeed in the workplace. Based on this feedback we have structured our first internship course to focus on those soft skills as the students learn to operate the equipment.

Since industry partners have identified the need for students to develop soft skills to enhance teamwork, the faculty decide to look at the section on workplace-based learning in the ATE Survey report.

Internships were by far the most common form of workplace-based learning among ATE projects and ATE projects in the biotechnology discipline in 2024.

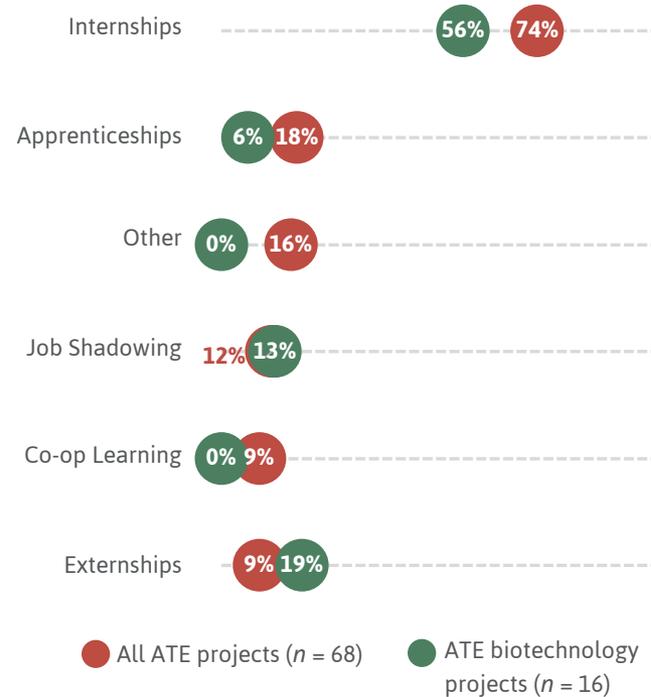


Figure 7. Types of Workplace-Based Learning Offered by all ATE Projects and ATE Biotechnology Projects in 2024



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The ATE Survey report also shows the characteristics of some of the most common forms of workplace-based learning.

Table 1: Characteristics of the Most Common Workplace-Based Learning Types in 2024

	Internships (n = 49)	Apprenticeships (n = 11)	Job Shadowing (n = 8)
Required by program	37%	27%	38%
Academic credit	63%	55%	38%
Coupled with a course	59%	36%	62%
Received payment	82%	73%	0%

Internships are frequently paid and provide academic credit. Given that community college students often have substantial out-of-school obligations (Beer & Bray, 2019), these additional benefits may make workplace-based learning more accessible to GNCC students. While shadowing a more senior worker may lead to improved soft skills, the lack of pay or academic credit would increase the burden for GNCC students, who are already reporting challenges in balancing school and paid work. In fact, earning simultaneous pay and credit could proactively address their need.

MENTORSHIP

GNCC faculty are also interested in mentorship activities. The ATE Survey report defines mentorship activities as those intended "to help less-experienced students develop the skills and knowledge they need to enhance their academic and professional growth." Mentorship could address the students' self-identified challenges with the pace and intensity of advanced technician education.

According to the 2025 ATE Survey report:

Mentoring was most often provided by educational faculty or staff (79%), followed by business and industry professionals (57%) and students or peers (54%). Thirty-six percent of projects that offered mentoring or coaching provided training to the mentors.

GNCC faculty are surprised to see that so many projects have both industry and faculty mentors, indicating support for both professional and academic goals. They decide to incorporate opportunities to engage in student mentorship into their outreach to potential industry partners. They note that most projects do not train their mentors, so they decide to investigate what mentorship training their industry partners may already be providing for staff who are in supervisory roles.



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COMPETITIONS

Local secondary schools report that K–12 students are unaware of advanced technological career opportunities. The ATE Survey report cites STEM education researchers saying that "participation in STEM competitions has a positive impact on students' interest in pursuing STEM careers" (Miller et al., 2018).

K–12 schools and industry partners also report a need for critical thinking and problem solving skills among students. According to the ATE Survey report, competitions are an opportunity for students to apply their skills to real-world problems.



**Over 7,000 students
participated in 69
student competitions**

GNCC faculty note that competitions are concentrated in engineering and IT and that **there are no competitions in biotechnology**. They recognize that individual competitions average around 100 students.

They decide to engage with their industry partners on what real-world problems could stimulate students' critical thinking skills, and how they could model them in a competition setting. They also decide to reach out to more K–12 schools.



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4 CATALYZING SUPPORT FOR THE PROJECT

In 2024, the EvaluATE team spoke with PIs, grant staff, and evaluators from various ATE projects about completing and using the survey. We learned that PIs and grant staff were **utilizing the survey in advocating for their programs with institutional leadership and to increase leaders' knowledge about ATE activities** in their colleges. We also heard that a lack of leadership engagement was one of the prime reasons that an ATE project could be delayed. Let's examine how the survey findings can help PIs secure buy-in and institutional support from deans and other college leadership for their ATE projects.

INDUSTRY SUPPORT FOR ATE

The ATE program solicitation requires that project proposals show deep and broad support from local industry partners. GNCC faculty decide that involving their vice president of community partnerships in their industry outreach would build her commitment to their proposed ATE project and lend her prestige to their outreach efforts. They show the VP some of the findings in the ATE Survey report about the types and frequencies of industry involvement in ATE projects.

The most common forms of industry engagement require a high level of partner engagement. Two-

thirds bring industry into classrooms alongside faculty, and 48% support workplace-based learning. (Table 1 shows that these are likely paid internships.) A simple chart like the one below from the ATE Survey report, which illustrates the industry's nationwide commitment to ATE projects, could encourage GNCC leadership to lend their prestige, connections, and influence to the biotechnology department as they seek new industry connections.



Figure 8. Types of Industry Partner Collaborations in 2024 (n = 294)



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SUPPORTS IN THE ATE COMMUNITY

GNCC faculty also want their leadership to understand that ATE is more than a granting program; it is a **community of mutually supportive projects committed to advancing technological education** in the United States. They decide to use the ATE Survey report to show their VP the program services, thematic networks, and centers in the ATE community.

ATE Program Services

A few ATE projects are funded specifically to support grant seekers looking to apply to the ATE program and those who have already received support.

AccessATE supported ATE projects in making their materials and activities more accessible to all students and faculty, including those with disabilities. accessate.net

ATE Central served as the ATE program's information hub, dedicated to highlighting ATE projects' work and supporting them in various aspects of their work, such as archiving, outreach, and connecting with others in the ATE community. atecentral.net

ATE Collaborative Outreach and Engagement raised awareness of the ATE program, primarily through the publication of the *ATE Impacts* book. ateimpacts.net

EvaluATE strengthened the evaluation capacity of those involved with ATE projects through training, networking opportunities, and research, including administration of the ATE Survey. evalu-ate.org

Journal of Advanced Technological Education (JATE) supported scholarship and published peer-reviewed publications relevant to the ATE community. micronanoeducation.org/journal-of-advanced-technological-education

Mentor-Connect served as a mentoring and leadership development program for two-year institutions of higher education new to the ATE program. mentor-connect.org

Mentor Links served as a mentoring initiative to support community colleges in developing new or strengthening existing STEM technician education programs. aacc.nche.edu/programs/mentorlinks

Mentor Up served as a mentoring initiative to support teams in developing and submitting successful ATE proposals. atementorup.org

Working Partners Workshops provided training to ATE project teams on how to effectively and sustainably collaborate with industry partners. workingpartnersproject.org



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Coordination Networks and Consortia

According to its funding solicitation, the ATE program “supports collaborations to strengthen partnerships between two-year [institutions of higher education] and industry to be responsive to industry needs and regional economic development. A consortium must address either a specific industry area or address a challenge where the convergence of technologies is changing the skills and competencies needed by the skilled technical worker.” These consortia create resources available to projects across the ATE program and to two-year higher education STEM institutions nationwide.

GNCC’s leadership observes that a consortium in the biotechnology field is developing a credential for biotechnicians. GNCC staff can reach out to the consortium for a current description of the credential. They may share that information with local industry employers, which [may encourage local industry to support their project](#).

The six other Coordination Networks and Consortia are:

National Applied Artificial Intelligence Consortium fosters development and implementation of technician-level AI courses, certificates, and degree programs.

National CyberWatch Resource Center Capacity Building advances development of evidence-based strategies and practices for cybersecurity education and workforce development.

National Electric Vehicle Consortium (NEVC) provides a venue for national collaboration to network training needs with training providers to provide broad-scale outreach and community building among educational institutions; industry; professional, trade, and regulatory associations; educators; and practicing technicians within the EV ecosystem.

National Information Technology Innovation Center (NITIC) leverages a mix of experienced and emerging community college partners to serve as leaders within their technology clusters to expand collaboration and develop future leadership for the ATE community.

Preparing a Skilled Technical Workforce through Utilization and Assessment of Undergraduate Research provides more undergraduate research experiences to community college students.

The Educational Alliance for Semiconductor Experiential Learning supports a novel education alliance centered on multimodal immersive experiential learning at a leading-edge semiconductor facility.



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FINDINGS AT YOUR FINGERTIPS

The ATE program solicitation calls for applicants to have strong ties to local businesses. GNCC faculty have already used the report to support researching the needs of their local industry to inform their proposed activities. They can go further by using the ATE Survey’s dashboard in live design conversations with their local industry collaborators. As partners discuss their training needs and potential contributions, GNCC faculty can quickly display visualizations on a mobile device and have a data-driven conversation about collaborative opportunities.

The ATE Survey dashboard displays survey findings dating back to 2019. The interactive filters allow users to explore ATE Survey findings that are most relevant to their context and interests.

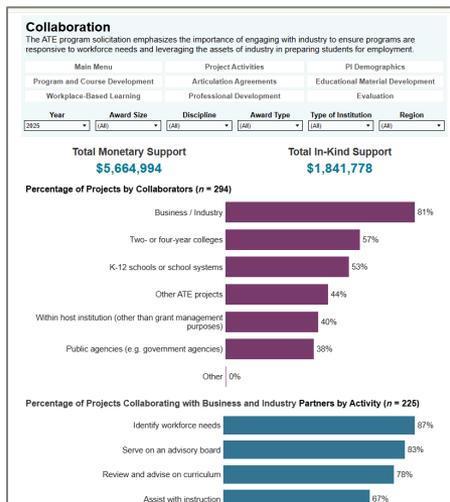


Figure 10. Screenshot from the ATE Survey Dashboard Displaying Data for **All** ATE Projects from 2025

GNCC faculty use the dashboard to quickly show their industry partners the diversity of ATE partnerships. With a few clicks, GNCC faculty disaggregate the data by discipline to show their potential partners only the data relevant to biotechnology projects. **Survey findings are at your fingertips to facilitate conversations that integrate local industry into your design discussions.**

For example, the dashboard can be filtered to only view findings of ATE projects in the biotechnology discipline.

The dashboard can be found at atesurvey.evalu-ate.org/survey-data.

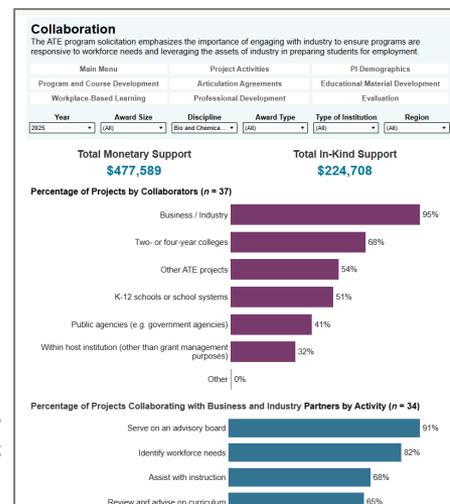


Figure 11. Screenshot from the ATE Survey Dashboard Displaying Data for **Biotechnology** ATE Projects from 2025



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SUMMARY

There are more than 150 findings in the ATE Survey, all of which are available to current and potential grant seekers.

To analyze the ATE landscape using ATE Survey findings, ask:

- What are the available disciplines and activities?
- What resources are already available in the ATE community?

To use survey findings to inform community resources and needs assessment, ask:

- Who (else) can our project consult?

To use ATE Survey findings to spark creative activity ideas, ask:

- What data links community needs to potential ATE activities?

To catalyze support within your institution and community using ATE Survey findings, consider:

- Findings about industry contributions
- Support for projects in the ATE program
- ATE Survey platforms that facilitate collaborative design.

The ATE Survey team is housed within the EvaluATE project at Western Michigan University. We are always available to support ATE projects and applicants making data-driven decisions about their programs and proposals. We can assist with additional analysis and guidance navigating the published reports and dashboards.



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