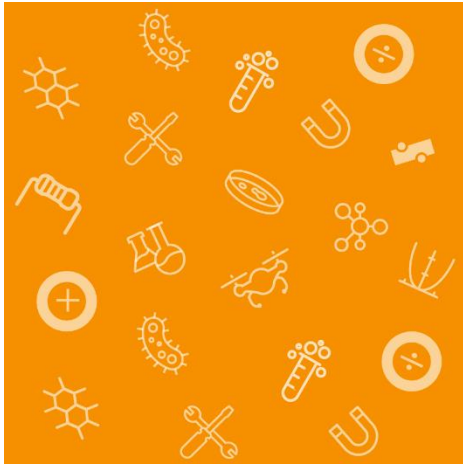


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ARMY EDUCATIONAL OUTREACH PROGRAM

2022 RESET Evaluation Report Summative Findings

July 2023



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Executive Summary

The Army Educational Outreach Program (AEOP) offers students and teachers science, technology, engineering and mathematics (STEM) programming that is designed to attract, develop, and mentor the next generation of the nation's diverse talent through United States (U.S.) Army educational outreach programs. The Research Experiences for STEM Educators and Teachers (RESET) program supports the AEOP mission by providing high school and middle school educators with authentic summer research experience at participating Army Research Laboratories and Centers.

Education Development Center, Inc. (EDC), the external evaluation partner for AEOP, conducted a summative evaluation of the 2021-2022 program year. The FY22 evaluation sought to document and assess the benefits of participation, program strengths and challenges, and overall effectiveness in meeting AEOP and program objectives. The primary tools for data collection were participant post-program surveys. It is important to recognize that survey results only reflect those individuals who completed surveys and may not be generalizable within the RESET program.

Key findings from the evaluation are presented below.

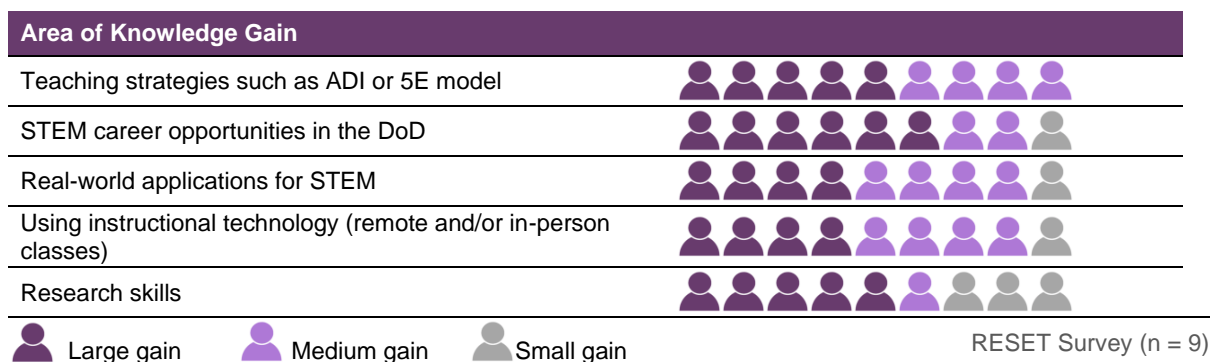
Overview of Participants

Although the majority of AEOP participants are students, educators have an opportunity to develop their STEM content knowledge and enhance their teaching practices through RESET. In FY22, 35 teachers participated in RESET and nine completed surveys (26% response rate).

Participant Experience and Outcomes

As Figure 1 shows, the majority of participants reported gains in all areas covered in the program.

Figure 1. RESET teachers reported gains in all areas



When asked, *What are the three most important ways that the RESET program has helped you?*, themes included:

- Learning about a variety of careers in STEM fields that can be shared with students
- Practicing new skills and techniques before trying them with students
- Collaborating with others to create a lesson plan
- Strengthening content knowledge
- Networking and building connections with other teachers
- Making connections to STEM researchers

In response to the question, *What are three ways that the RESET program should be improved for future participants?*, the top responses included providing 1) additional supply funding for classrooms and 2) in-person research options.

Recommendations

Although the data collected for this evaluation are not necessarily representative of the entire program, based on the survey results we offer the following recommendations:

Programmatic Considerations

Continue to offer content-rich professional development as well as relevant research experiences. Participants noted that their experience in RESET helped them to deepen their STEM content knowledge and develop effective teaching practices.

Explore ways to improve access to in-person research experiences. When asked about suggestions for improvement, in addition to a request to increase the stipend, one of the common responses was related to opportunities for in-person research experiences. A couple of respondents made general references to research sites, and one mentioned a desire for a site closer to where they live.

Evaluation Considerations

Continue to examine ways to increase response rates. The relatively low survey response rate (26%) makes it difficult to generalize the findings. The EDC evaluation team is working with IPAs to troubleshoot these issues and develop strategies to improve response rates.

1 Introduction

AEOP Priorities & Goals

The Army Educational Outreach Program (AEOP) mission provide an accessible pathway of science, technology, engineering, and mathematics (STEM) opportunities to attract, develop, and mentor the next generation of our nation's diverse talent through United States (U.S.) Army educational outreach programs.

AEOP has three priorities:

1. **STEM Literate Citizenry.** Broaden, deepen, and diversify the pool of STEM talent in support of our Defense Industry Base (DIB).
2. **STEM Savvy Educators.** Support and empower educators with unique Army research and technology resources.
3. **Sustainable Infrastructure.** Develop and implement a cohesive coordinated, and sustainable STEM education outreach infrastructure across the Army.

The Research Experiences for STEM Educators and Teachers (RESET) program supports the AEOP mission by providing high school and middle school educators with authentic summer research experience at participating Army Research Laboratories and Centers.

2 Evaluation Approach

Education Development Center, Inc. (EDC) became the AEOP's external evaluation partner in fall 2021. The primary tools for data collection for the RESET program were participant post-program surveys, which were designed to evaluate the benefits of participation, program strengths and challenges, and overall effectiveness in meeting AEOP and program objectives.

2.1 Survey Respondents

This report describes participant data and results from participant surveys.

Participant Survey Response Rates

In FY22, 35 teachers were participants in the AEOP RESET program. Nine (9) completed surveys about their experiences.

- All survey respondents had at least 6 years of teaching experience and represented both middle and high school. Most participated in RESET Level I (5), with one in Level II and three in Level III. Four respondents reported FY22 was their first year of the RESET program.
- Respondents included math teachers, science teachers, and STEM teachers.
- Most respondents learned about RESET from the AEOP website, AEOP social media, an AEOP site host, workplace communications, and from colleagues.

2.2 Limitations

In FY22, 35 teachers participated in RESET and nine completed surveys. While these numbers are small and responses are not representative of all participants, a few key highlights are included in the report below.

2.3 Report Organization

Evaluation findings presented below are guided by the research questions and organized thematically by topic. Sections include the following:

- AEOP Activities
- Development of STEM Skills
- Overall Experience
- Recommendations

3 AEOP Activities

RESET provides educators with summer research experience at participating U.S. Army Laboratories. The goal of this enriching program is to reinforce teachers' content knowledge through research experience and interactions with U.S. Army and Department of Defense scientists and engineers. Selected teachers will participate in online learning as a cohort, with a subset of the cohort selected to conduct research on-site with a mentor U.S. Army scientist or engineer. At the completion of the program, teachers will be able to translate this knowledge and experience into enhanced STEM research curricula and enriched learning for their students.

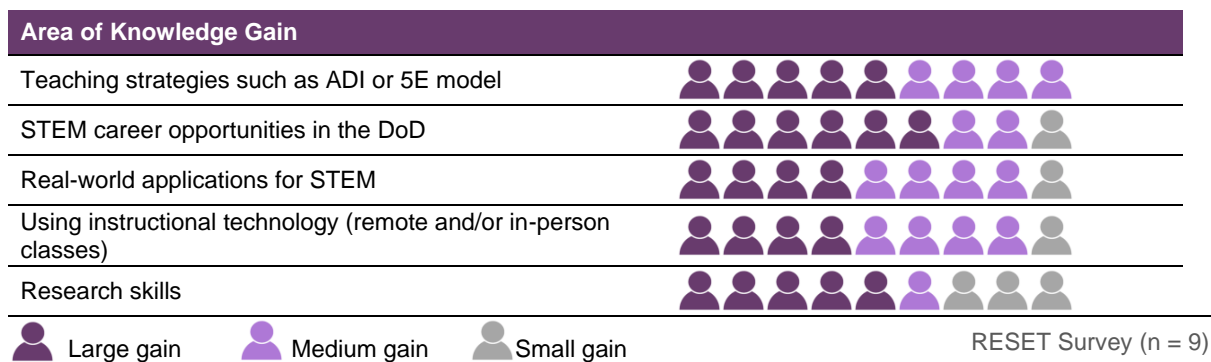
4 Development of STEM Skills

The majority of RESET participants reported gains in all areas covered in the program.

4.1 Teachers' Knowledge and Practice

More than two thirds of survey respondents reported medium or large gains in knowledge because of their RESET experience (see Figure 1).

Figure 1. RESET teachers reported gains in all areas



4.2 Open Ended Responses

When asked, *How do you think you, as a teacher, benefitted from participating in RESET?* a selection of responses included:

- I am able to see experience hands-on, real-world research and bring it back to my classroom. I am able to work with teachers from all over the world. I get to learn new tools that I can add to my pedagogical bucket.
- I got to see how my content area may be used at a research facility and how my mindset (even though I am a teacher) can help others on a team (despite having little experience in the lab).
- I learned so much from talking to others and hear[ing] their experiences. My mentor was amazing, his knowledge and connections were incredible. We would just mention

something and he would pull up a website that was perfect for what we were looking for.

When asked, *How do you think your students have benefited or will benefit from your participation in RESET?* a selection of responses included:

- I have implemented a lot of things I have learned from RESET... I have shared my experience with my students and career opportunities that they may never have heard of before.
- My students have benefited from my participation by getting more opportunities to learn science by having more opportunities to practice what they learned (activities, labs, etc.) Also by using some of the concepts learned, I am able to create a class that is more engaging and my students have more learning opportunities by doing activities in which they apply and use the Scientific Method.
- Utilizing the lessons, real-world examples and showing them the possibilities for where STEM can lead them is so powerful. It has helped them see why what we are doing and learning is important.

When asked, *Did you or do you plan to incorporate elements of your online learning and research experience into your classroom? How?* a selection of responses included:

- I have incorporated elements of the online learning...in my lessons. I also started showing my students the variety of possible careers they can have within the STEM field by showing them sections of the presentations with the ARMY scientists and additional websites.
- I want to encourage my students to do more research and to be more aware of the possibilities that STEM careers and research can provide. That there are so many opportunities for them out there. Starting in middle school, I can help them find some possibilities and interests prior to high school when they will need to choose classes that work for their intended goals.

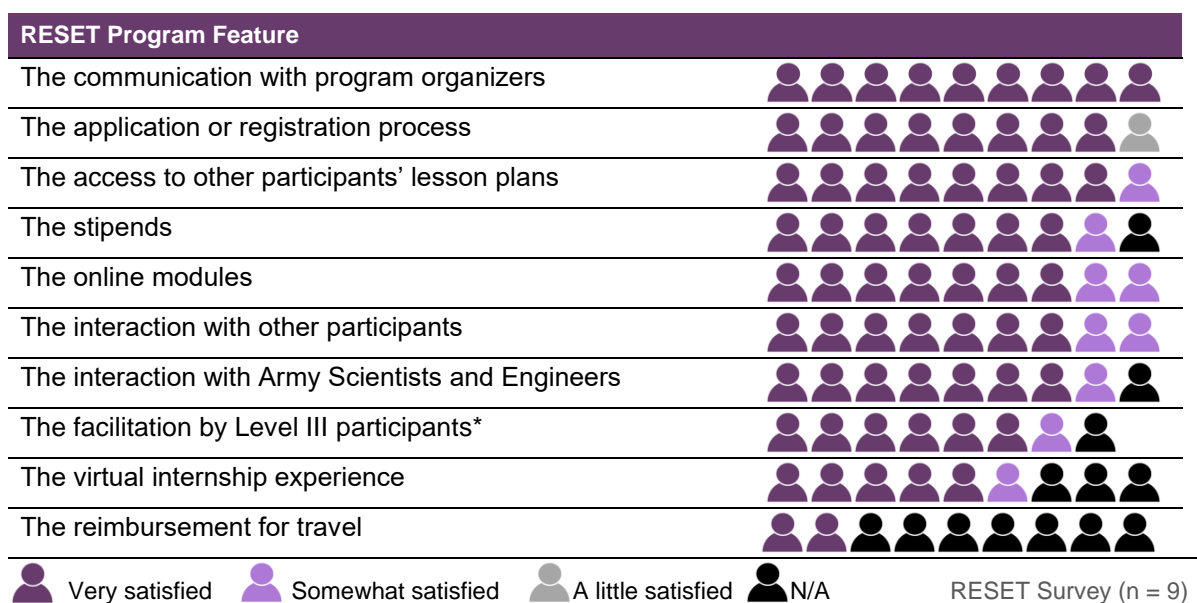
5 Overall experience

The majority of RESET participants reported strong satisfaction with the program.

5.1 Program Satisfaction

More than three-quarters of survey respondents were very satisfied with almost all the features of the RESET program (see Figure 2). Two features were not experienced by all respondents and have lower proportions of very satisfied responses.

Figure 2. RESET teachers were very satisfied with program features



*N=8

5.2 Suggestions for Improvement

In addition to asking participants about their overall satisfaction, the survey also asked them to identify areas for improvement. Participants were asked, *What are the three ways RESET should be improved for future participants?* The top responses included providing 1) additional supply funding for classrooms and 2) in-person research options.

5.3 Awareness of Other AEOP Programs

Survey respondents reported they became most aware of the eCYBERMISSION, High School Apprenticeships, JSS, JSHS, and Undergraduate Research Apprenticeships during their RESET program experience (see Table 3).

Table 3. AEOP programs teachers learned about through RESET (n=9)

AEOP Program	Percent
eCYBERMISSION	56%
High School Apprenticeships (grades 9-12)	44%
Junior Solar Sprint (JSS)	33%
Junior Science & Humanities Symposium (JSHS)	33%
Undergraduate Research Apprenticeships (college students)	33%
Gains in Education of Mathematics and Science (GEMS)	11%
Science, Mathematics, and Research for Transformation (SMART) College Scholarship	11%
None of the above	11%
Camp Invention	0%
GEMS Near Peer Mentors	0%
UNITE	0%
National Defense Science & Engineering Graduate (NDSEG) Fellowship	0%

6 Recommendations

This Summative Evaluation Report distills findings from the RESET participant survey. As stated in the limitations, the data collected for this evaluation are not necessarily representative of the entire program; however, based on the survey results presented above we offer the following recommendations:

Programmatic Considerations

Continue to offer content-rich professional development as well as relevant research experiences. Participants noted that their experience in RESET helped them to deepen their STEM content knowledge and develop effective teaching practices.

Explore ways to improve access to in-person research experiences. When asked about suggestions for improvement, in addition to a request to increase the stipend, one of the common responses was related to opportunities for in-person research experiences. A couple of respondents made general references to research sites, and one mentioned a desire for a site closer to where they live.

Evaluation Considerations

Continue to examine ways to increase response rates. The relatively low survey response rate (26%) makes it difficult to generalize the findings. The EDC evaluation team is working with IPAs to troubleshoot these issues and develop strategies to improve response rates.