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ARMY EDUCATIONAL OUTREACH PROGRAM

RESET

2020 Annual Program Evaluation Report

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ARMY EDUCATIONAL OUTREACH PROGRAM

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3 | Introduction

Goal 1: STEM Literate Citizenry. Broaden, deepen, and diversify the pool of STEM talent in support of our defense industry base.

Goal 2: STEM Savvy Educators. Support and empower educators with unique Army research and technology resources.

Goal 3: Sustainable Infrastructure. Develop and implement a cohesive, coordinated, and sustainable STEM education outreach infrastructure across the Army.

The Army Educational Outreach Program (AEOP) vision is to offer a collaborative and cohesive portfolio of Army sponsored science, technology, engineering and mathematics (STEM) programs that effectively engage, inspire, and attract the next generation of STEM talent through K-college programs and expose participants to Department of Defense (DoD) STEM careers. The consortium, formed by the Army Educational Outreach Program Cooperative Agreement (AEOP CA), supports the AEOP in this mission by engaging non-profit, industry, and academic partners with aligned interests, as well as a management structure that collectively markets the portfolio among members, leverages available resources, and provides expertise to ensure the programs provide the greatest return on investment in achieving the Army's STEM goals and objectives.

This report documents the evaluation of one of the AEOP elements, the Research Experiences for STEM Educators and Teachers (RESET). The evaluation study was performed by NC State University in cooperation with Battelle, the Lead Organization (LO) in the AEOP CA consortium.

Program Overview

Research Experiences for STEM Educators and Teachers (RESET), a division of the Army Educational Outreach Program (AEOP), is sponsored by the U.S Army and managed by Tennessee Technological University (Tennessee Tech). Launched in 2016, RESET provides STEM educators (referred to as "participants" or "teachers" throughout this report) with online learning opportunities and summer research experiences at participating Army laboratories and research centers. It is designed to provide high school and middle school educators with an authentic summer research experience at participating Army Research Laboratories and Centers. The program serves educators nation-wide while prioritizing those who serve communities with historically underserved populations. RESET immerses STEM educators in authentic research so that they are equipped to provide students with opportunities to apply

STEM concepts within real-world contexts. Educators apply as Level I, Level II, and Level III participants of RESET. Educators are typically selected for Level II based on previous experience as Level I participants. Level III participants are those with previous program experience who wish to act as facilitators of the online modules.

All selected educators agree to complete three modules of work at their respective level, as well as attend three Army Scientist & Engineer Discussions. Module 1 serves as the study of best STEM practices and scientific research. This module is facilitated by Level III participants. Army Scientist & Engineer Discussions provide Level I, II, and III participants with opportunities to engage directly with world-class Army S&Es. Module 2 consists of a four-week in-person internship by Level II participants on site at an Army Research Laboratory or Center. During the internship, participants work under the mentorship of an Army scientist or engineer as a member of an Army research team, working at the bench on real-world DoD research. Throughout module 2, Level II participants document their experiences and communicate weekly with their assigned Level I partners. Module 3 serves as a collaboration between level I and II participants. During this module, Level I and Level II participants work together to create lesson plans based on the Level II participants' research experiences. Level III facilitators lead these collaborative meetings in addition to aiding in the facilitation of all modules.

In FY20, 27 teachers representing 25 K-12 schools (18 Title I schools) participated in RESET. Program levels were altered slightly for 2020 because of COVID-19. All participants who applied for Level I and Level II were placed in the program as Enhanced Level I participants. This change was made because Army S&Es met virtually with all participants and all participants worked through three modules together with no differentiation among initial levels. Originally there were 16 Level I, eight Level II, and three Level III participants. The three Level III participants continued in that position to help facilitate the participant teams. Four participants who were initially Level II completed a 40-hour virtual research experience with a mentor who had agreed to host remote interns. There was also an added focus in the online modules to prepare teachers for online teaching and learning in light of the shifts to online instruction that have occurred as a result of the pandemic. This was accomplished by adding content about HyperDocs and other online learning tools and transforming the lesson plan template used in FY19 to utilize the 5E Instructional model for both face-to-face and virtual instruction.

Table 1 displays demographic characteristics of RESET participants and Table 2 displays the Army labs or centers that participated in RESET in 2020.

Table 1. 2020 RESET Participant Profile		
Demographic Category	**Number**	**Percentage of Participants**
Participant Gender (n =27)		
Female	18	66.7%
Male	9	33.3%
Participant Race/Ethnicity (n =27)		
Asian	2	7.4%
Black or African American	6	22.2%
Hispanic or Latino	1	3.7%
Native American or Alaska Native	0	0%
Native Hawaiian or Other Pacific Islander	1	3.7%
White	15	55.6%
More than one race	1	3.7%
Other race or ethnicity	1	3.7%
Choose not to report	0	0%
School Setting (n =27)		
Urban (city)	7	25.9%
Suburban	6	22.2%
Rural (country)	12	44.5%
Frontier or tribal School	0	0%
DoDDS/DoDEA School	1	3.7%
Home school	0	0%
Online school	0	0%
Choose not to report	1	3.7%

Seven Army labs or centers participated in RESET in 2020. These sites either had S&Es who participated in the Army Scientist & Engineer Discussions or hosted participants for virtual research experiences. A total of 17 S&Es participated in RESET in 2020.

Table 2. 2020 Army Labs or Centers Participating in RESET		
Command and Laboratory or Center		**Location**
U.S. Army Corps of Engineers	U.S. Army Engineer Research Center	Vicksburg, Mississippi
U.S. Army Combat Capabilities Development Command (DEVCOM)	Army Research Laboratory (DEVCOM–ARL-APG)	Aberdeen Proving Ground, Maryland
	Army Research Laboratory (DEVCOM–ARL-ALC)	Adelphi, Maryland
	Army Research Laboratory (DEVCOM-ARL-NE)	Boston, Massachusetts
	Army Research Laboratory – Army Research Office (DEVCOM – ARL-ARO)	Durham, North Carolina
	Data & Analysis Center (DEVCOM-DAC-WSMR)	White Sands Missile Range, New Mexico
U.S. Army Medical Command (APHC)	U.S. Army Public Health Center	Aberdeen Proving Ground, Maryland

Table 3 summarizes RESET costs for 2020. In FY19 the total cost for RESET was $ $128,631. The cost per participant for FY20 was $6,490 based on a total cost of $175,220. The reported travel costs for FY20 programs are from pre-pandemic travel (October 2019-February 2020) and from non-refundable travel expenses that were booked prior to shifting to virtual programming.

Table 3. 2020 RESET Program Costs	
Total Cost	$175,220
Total Travel	$1,331
Participant Travel	$0
Total Awards	$58,000
Stipends	$58,000
Cost Per Participant	$6,490

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4 | Evaluation At-A-Glance

NC State University collected the FY20 evaluation data for the RESET program. The RESET logic model below presents a summary of the expected outputs and outcomes for the RESET program in relation to the AEOP priorities. This logic model provided guidance for the overall RESET evaluation strategy.

Inputs	Activities	Outputs	Outcomes (Short term)	Impact (Long Term)
• Operations conducted by Tennessee Tech University and DoD partners • Development of online learning modules and partnership with Army labs and centers • Centralized branding and comprehensive marketing • Centralized evaluation	• STEM educators participating in online learning cohorts • STEM educators learn to structure students' active learning and research • STEM educators participate in research experiences in Army labs • Program activities that expose STEM educators to AEOP programs and STEM careers in the Army or DoD	• Number and diversity of STEM educators engaged in programs • Number of schools served through educator engagement • Army labs and centers hosting educators for research experiences	• Increased educator proficiency in STEM teaching • Application of participant learning to teaching practices • Increased participant awareness of AEOP opportunities • Increased participant awareness of DoD STEM research and careers • Implementation of evidence-based recommendations to improve RESET programs	• Increased student learning and engagement in STEM • Increased teacher and student participation in AEOP and DoD-sponsored programs • Increased student pursuit of STEM coursework in secondary and post-secondary schooling • Increased student pursuit of STEM degrees • Increased student pursuit of STEM careers • Increased student pursuit of DoD STEM careers • Continuous improvement and sustainability of RESET

Because of the relatively small population of RESET participants, the evaluation employed a formative approach, focusing on gathering descriptive information about RESET processes, resources, and activities and on understanding individual participants' perspectives about the program. These data were correlated with overall AEOP objectives. The assessment strategy for RESET included ten interviews with RESET participants as well as program information from RESET administrators. Table 4 outlines the information collected in interviews and Table 5 summarizes the information provided by program administrators.

Table 4. 2020 Participant Interviews	
Category	**Description**
Profile	Teaching experience, type of participation in RESET (online only or online plus research experience)
Satisfaction & Suggestions	Value of RESET to participants and suggestions for improving RESET program components
AEOP Goals 2 and 3 - Program Efforts	Extent to which participants were exposed to other AEOP opportunities
	Extent to which participants were exposed to STEM and Army/DoD STEM jobs
	Extent to which participants were exposed to Army/DoD research and resources
	Benefits to participants, suggestions for improving programs, overall satisfaction

Table 5. 2020 Administrator-provided Information	
Category	**Description**
Program	Description of course content and activities
AEOP Goals 1,2, and 3	Data on participant demographics and school settings
Program Efforts Program	Description of program activities; Participation of Army research facilities in activities
	Description of collaboration with other AEOP
	Description of course content and activities

Information about evaluation methods is described in Appendix A, the evaluation plan. The reader is strongly encouraged to review Appendix A to clarify how data are summarized, analyzed, and reported in this document. The participant interview protocol is provided in Appendix B.

Study Sample

A subset of ten participants was chosen from the overall population of 27 RESET participants to participate in telephone interviews. Seven of the participants were female and three were male. Interview participants had between five and 36 years of teaching experience. Seven participants were high school science teachers, one was a high school math teacher, one was a district science specialist, and one was a mathematics intervention specialist for a high school. Seven of the teachers interviewed were first-time RESET participants; of these, five had applied as Level I participants and two had applied as Level II participants. The other three participants had participated in RESET previously and had applied as Level II participants. As noted above, Level II participants participated as Enhanced Level I participants; two of these participants completed online internships with an Army S&E mentor, however the third was unable to complete the internship portion due to conflicts with a graduate program in which he was enrolled. Interviews were intended to provide a descriptive narrative of RESET's efforts and impacts and to highlight areas for future exploration in programming and evaluation.

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5 | Priority #1 Findings

Broaden, deepen, and diversify the pool of STEM talent in support of our Defense Industry Base

RESET participation increased by 19% in 2020 as compared to 2019 when 22 teachers participated in the program. Two-thirds of RESET participants in 2020 were female, a distribution similar to 2019 when 73% of participants were female. Slightly more participants were White in 2020 (56%) as compared to 2019 (41%). Just under a quarter (22%) were Black or African American (23% in 2019), and 7% were Asian (14% in 2019). As in 2019, few participants identified themselves as any other race/ethnicity. The most frequently reported practice setting in 2019 was rural (44%) followed by urban (26%), and suburban (22%). 2019 practice settings were primarily suburban (50%) and urban (41%) with only 9% of teachers reporting that they taught in an urban school.

Interview participants learned about RESET in a wide variety of ways. The first-time participants who offered information about how they learned about the program each reported learning about RESET in a different way. Participants learned about the program through the following means:

- Tennessee Tech faculty
- NSTA bulletins
- AEOP website
- A friend who is a teacher
- A JSHS event
- Conducting a Google search for professional development programs
- A university ethics conference

Three of the participating teachers noted that they would share information about RESET with other teachers from their districts to expand the program's reach. One teacher noted that the program could be improved by more publicity to reach more teachers.

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6 | Priority #2 Findings

Support and empower educators with unique Army research and technology resources.

One of the goals of the RESET program is to equip teachers with scientific research knowledge and competencies that they can share with students. Participants participating in Interviews all expressed high levels of satisfaction with their level of learning and other features of the program. Participants said, for example,

> *"[RESET was an] exemplary program...it was paced correctly...The people with which I was involved, the director and the mentors...[were] incredibly kind and considerate and supportive."* (RESET Level I Participant)

> *"I took three different professional developments this summer and, by far, RESET…was the best, as far as virtual learning is concerned...This was by far the best PD that I've done, I'd say, in 20 years."* (RESET Level I Participant)

> *"I have already reapplied to do level one again. and…I'll apply for level two...I thought it was so beneficial that I wanted to do it again. [As a] matter of fact, I thought it was so beneficial that I applied to do NGSTP."* (RESET Level I Participant)

> *"I just think it's a great program. For me, it's just good to interact with other teachers from all over United States…I'm going to try and get some of our newer teachers into it."* (RESET Enhanced Level I Participant)

Overall, teachers commented upon a variety of features of program features and the overall value of RESET. The following sections will outline participants' perspectives on program benefits, the ways that they plan to apply elements of their experiences into their own classrooms, and suggestions for program improvement.

Program Benefits

All RESET interview participants cited benefits of participating in the program. The most frequently cited benefits were the learning they experienced, the opportunity to interact professionally with other teachers, and the career information they received through contact with Army S&Es.

All interview participants commented upon the learning they experienced during RESET. Teachers cited the general research skills they gained, the Legacy Cycle, and the Lotus Blossom approach as impactful elements of the program. Participants said, for example,

> *"I learned a ton [about research], stuff I should've known years ago and didn't."* (RESET Level I Participant)

> *"I love the Lotus Blossom, how they developed a research idea from that. That's one of the best things out of... RESET."* (RESET Level I Participant)

> *"I realized that I was already doing a lot of these steps in the 5E cycle. It just modifying some of the assignments or projects, or just even stepping back and looking at, 'Oh, I can use this. I can do this to make my little projects that my kids did. This would make it much better if I add this step.' [RESET] gave us better ideas of how to incorporate each step and how to further engage our students."* (RESET Level I Participant)

All participants commented on the benefit of interacting with other teachers during RESET. Participants commented on the value of talking to other teachers in a variety of practice settings and learning about how they contend with challenges in their practice. Some teachers indicated that they plan to remain in contact with their teacher peers from RESET, either via social media or in working groups in which they will continue to refine their lesson plans. Two teachers commented on the value of the Level III facilitators, commenting that these individuals helped to make content relevant and relatable for practicing teachers. Participants said, for example,

> *"There was enough time during the group meeting sessions where we got to interact with each other, share some different viewpoints, and I thought that was valuable…Very rarely do you have the opportunity to meet and talk with other people that teach the same thing that you teach from different places around the United States. I thought that was really interesting, to get viewpoints from people all over the place and how they address some of the same challenges that I have."* (RESET Level I Participant)

> *"[RESET is] a great program for teachers to learn something, and to interact with teachers from all over. That's the other great part about it, interacting with teachers from everywhere."* (RESET Enhanced Level I Participant)

> *"I liked that [RESET] was pretty much run by teachers...because [the Level III facilitators] thought like the teachers that were participating. They already knew what we were going to ask questions on. They were already covering it."* (RESET Level I Participant)

Most interview participants also commented upon the value of interacting with the Army S&Es via the Army Scientist & Engineer Discussions, the real-world research they were exposed to, and the value of the insights into careers they gained. Participants said, for example,

> *"I didn't realize just how much research was going on, first of all, and then the Army doing that research was very interesting to me."* (RESET Level I Participant)

> *"[The S&Es] did hour-long discussions where they talked about their career and how STEM applies to it. Everything from classes they took in high school that were valuable to things that are rewarding in different types of careers related to STEM in the Army."* (RESET Level I Participant)

> *"My [RESET] experience was awesome. It was a great experience ...having exposure to those different sciences and the different types of careers, which I can share with my students - [RESET is] phenomenal."* (RESET Level I Participant)

The two Enhanced Level I participants interviewed both spoke positively about their virtual internship experiences and their mentors, although both noted that they regretted not being able to complete an on-site research experience. In spite of this, teachers seemed to have made meaningful connections with their S&E mentors. As one participant said,

> *"[The internship] was great. I still have a big connection with my mentor."* (RESET Enhanced Level I Participant)

Other benefits mentioned included the format and organization of the program, the funding teachers received, the access they had to other participants' lesson plans, the support for online instruction the program provided, and the opportunity to form a community of support with other teachers during the pandemic. One participant noted that the program had exposed her to virtual resources for lab simulations that she plans to share with other teachers. Other participants noted that they had learned about new online tools, such as HyperDocs, Flipgrid, and Padlet. One RESET interview participants said,

> *"Throughout our weekly meetings, we were able to interact and check up on each other. The most important thing is checking up on each other and seeing how everybody was doing during this time. You have trying times, which was really good. That was probably the biggest, most important part of it."* (RESET Level I Participant)

Classroom Application

Interview participants were asked to comment on whether and how they would apply their experiences in RESET in their teaching practice. All teachers indicated that they planned to implement elements of their RESET experience in their teaching, although several indicated that virtual schooling would delay some of their plans. This was particularly true of their plans to implement the lesson plans they created within the program. Some teachers indicated that they would modify their lesson plans to deliver them online, and one teacher enthusiastically responded as follows:

> *"On the first day of school I'm doing a lesson…from RESET."* (Level I RESET Participant)

Teachers indicated that they would implement teaching strategies such as the Lotus Blossom technique into their teaching, and that they planned to revise their teaching using the 5E approach and other ideas they learned in RESET.

Besides the implementation of lesson plans developed during RESET, the most frequently mentioned plan for classroom application of teachers' learning was related to the careers they had learned about and the ability to make real-world connections from the Army research to which they were exposed in RESET. For example,

> *"I have trouble telling the kids what they will use math for. You know how kids always say, 'what am I going to use this [for]?' I can only list a couple of careers…but [in RESET] I was able to hear what all these gentlemen and ladies do for a living. It was incredible."* (Level I RESET Participant)

> *"[In my class], I talked a little bit more about the career aspects of the doctors and the researchers. The kids thought that was really, really cool. A lot of them never heard of any of these jobs. They didn't know that these jobs existed. As we moved forward, every Friday, we'd…focus on [one researcher's] career for one day, maybe 20 30 minutes. The kids have some idea of the different fields of science that they can go into."* (RESET Enhanced Level I Participant)

> *"I also want to use just some of the ideas that the researchers were presenting. [Teachers are] way back from real world and what's going on in real world time in research...I teach ninth grade so they're just learning the very, very basics of physics and chemistry. Having real world examples to go back and talk about is going be great."* (Level I RESET Participant)

As noted above, teachers also learned about technology to support their online teaching, and some indicated that they would apply these technology tools in their practice. As one RESET teacher said,

> *"I've learned some new tricks and tools to take back to the classroom, like Flipgrid and Padlet. Those are not tools that I had used before, but they're tools that I'm using now, especially in the virtual environment."* (RESET Enhanced Level I Participant)

One RESET teacher noted in his interview that the experience of being a learner provided him with a fresh insight into his students' learning that he would apply in his teaching. In his words,

> *"The fact that I'm doing the same kind of [learning] that they're doing, it gives me a different approach that I can use with them and say, 'Hey, I know exactly what you're going through,' instead of just saying, 'Well, this is the way you're supposed to do it.'"* (RESET Level I Participant)

Suggested Improvements

RESET participants were asked in the interviews to share their ideas about ways that the RESET program could be improved for the future. While participants had few suggestions for improvement overall, several indicated that the ability to be on site for the research experience would be an improvement. Other improvements, each noted by one teacher, included the following:

- Being alert to technology access problems, particularly in accessing the videoconferences; one participant noted that his access was "glitchy" and that he missed program content, although he noted that this had the benefit of alerting him to problems his own students might have with virtual instruction
- Ensuring that the platform for videoconferencing is available for at least one hour (the Zoom videoconferencing platform automatically shut off after 40 minutes and one participant felt that the teachers needed an hour or more "because the discussion was so good")
- Providing all participants, the opportunity to work with S&E mentors
- Enabling participants to travel to meet with S&Es in person
- Improving communication (answering emails or providing an alternative forum for asking questions)
- More publicity for RESET
- Ensuring that funding is disbursed in a timely fashion.

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7 | Priority #3 Findings

Develop and implement a cohesive, coordinated and sustainable STEM education outreach infrastructure across the Army.

Awareness of STEM Careers in the Army or DoD and of Other AEOP

In alignment with the AEOP goals to create a pipeline of programs that attracts a diverse group of students and to provide information about STEM careers in the Army or DoD, RESET interview participants were asked to comment on the knowledge they gained about STEM careers in the Army or DoD and other AEOP during their RESET experiences.

All RESET interview participants indicated that they had learned about STEM careers in the Army or DoD during RESE. As noted above, participants commented positively on the Army Scientist & Engineer Discussions, crediting these online presentations for their new understanding of STEM careers in the Army. One participant described the meetings as follows:

> *"[The S&Es] talked about their background, their education, their present position - what they do. We were to write down questions that we would want to ask them, and we submitted those. Then we requested one or two individuals that we would like to interview virtually. They were all so interesting."* (RESET Enhanced Level I Participant)

Most teachers interviewed indicated that they had already or planned in the future to incorporate career information into their teaching. In addition, teachers collaborated with S&Es as they built their lesson plans, allowing participants to gain a deeper and more nuanced understanding of S&Es' work. Participants were then able to share these lesson plans with the entire cohort, with the potential that multiple participants could incorporate elements of the collaborating S&E's research into their classroom practice. One participant described this process, saying,

> *"In module three, we built and designed our own lesson plan, which was in alignment with what [the S&E speakers] were doing. Then, I presented that to everybody else so that they could use it in their classrooms as well."* (RESET Level I Participant)

Likewise, all interview participants reported that they had learned about the other AEOP during RESET. Participants reported that the course content included a presentation on AEOP, that participants read about the programs as a course assignment, and that information on programs is available through a social media site created for the RESET cohort. Three interview participants had previous experience with AEOP. These teachers had students who had participated in GEMS, eCYBERMISSION, JSHS, and SEAP. Four participants who were new to AEOP shared that they planned to either encourage students to participate in an AEOP or planned to share the information with guidance counselors, thus acting as unofficial ambassadors of AEOP. For example,

> *"Honestly, I don't think our school knew anything about [AEOP] before this past summer...I wrangled in another teacher to [share the information] ...She's just as excited about telling students about [AEOP] as I am."* (RESET Level I Participant)

> *"I'm making plans for particular students...to get them inside some of these challenges and to enhance their learning."* (RESET Level I Participant)

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8| Summary of Findings and Recommendations

The following is a summary of findings from the FY20 RESET evaluation, with findings aligned to the three AEOP key priorities:

1. Broaden, deepen, and diversify the pool of STEM talent in support of our Defense Industry Base
2. Support and empower educators with unique Army research and technology resources
3. Develop and implement a cohesive, coordinated, and sustainable STEM education outreach infrastructure across the Army.

AEOP Priority: Broaden, deepen, and diversify the pool of STEM talent in support of our Defense Industry Base

A total of 27 teachers participated in RESET in 2020, a 19% increase over the 22 teachers who participated in 2019, and a 26% increase over 2018 when 20 teachers participated. RESET continues to serve primarily female participants and, although most participants in 2020 were White, the program attracted participants from a range of racial/ethnic backgrounds. Two-thirds of RESET participants in 2020 were female, a distribution like 2019 when 73% of participants were female. Slightly more participants were White in 2020 (56%) as compared to 2019 (41%). Just under a quarter (22%) were Black or African American (23% in 2019), and 7% were Asian (14% in 2019). As in 2019, few participants identified themselves as any other race/ethnicity. 2020 RESET participants represented 25 K-12 schools across the nation, 18 of which were Title I schools. Teachers practiced in rural (44%), urban (26%), and suburban (22%) settings.

RESET participants had learned about the program from a wide variety of sources, suggesting that a diversified marketing approach has the potential to reach participants. Some participants had learned about the program through personal or professional connections, some through other AEOP, and others through means such as Google searches, the AEOP website, and a conference hosted at a university.

AEOP Priority: Support and empower educators with unique Army research and technology resources

Participants expressed a high level of overall satisfaction with their RESET experiences. Participating teachers reported learning about scientific research and associated teaching strategies, networking with other teachers, and learning about Army research and careers first-hand from Army S&Es. Most teachers cited specific ways that they would apply their learning in RESET into their classroom practice. This included delivering lesson plans that they or others in RESET had developed, using strategies such as 5E lesson plans and the Legacy Cycle in their classrooms, sharing Army and DoD STEM career information with their students, using examples from Army research to make real-world connections to students' learning, and using online teaching tools they learned about during RESET.

Several participants believed that RESET would have been more impactful if the Level II research experiences had been on site in Army labs or centers.

AEOP Priority: Develop and implement a cohesive, coordinated, and sustainable STEM education outreach infrastructure across the Army

All interview participants reported learning about STEM careers in the Army & DoD and about other AEOP during RESET. Career information was delivered primarily by a series of Army Scientist & Engineer Discussions held by videoconference. The S&Es collaborated with participants in creating lesson plans, which were then shared with the entire cohort. This suggests that the information about Army research and careers within these lesson plans has the potential to be shared in a wide variety of setting across the country. AEOP information was delivered via a presentation from the program and through a course assignment to read about the various initiatives. This information continues to be disseminated and updated on a social media site created for the RESET cohort.

All participants found the Army Scientist & Engineer Discussions to be educational, interesting, and useful as they developed their lesson plans, and perceived these presentations and the opportunity to interact with S&Es to be a central element of the program. Participants' enthusiasm about the interactions with the S&Es suggests that this is an effective forum for connecting teachers to S&Es to learn about careers and Army research.

Likewise, participants who were previously unfamiliar with AEOP expressed enthusiasm about the range of programs available to their students. Some participants had made plans to encourage students to participate in other AEOP and one reported that she had signed up for eCYBERMISSION as a result of learning about it in RESET. The universal familiarity with and enthusiasm for AEOP among participants suggests that the program's approach to informing participants about AEOP was effective.

In addition, one interview participant reported already having registered for the Next Generation STEM Teaching Program (NGSTP), another AEOP initiative targeted toward teacher professional development. This suggests the potential for these programs to form a teacher professional development pipeline within the AEOP.

Recommendations for FY20 Program Improvement/Growth

Evaluation findings indicate that RESET was perceived favorably by participating teachers. In particular, the utilization of videoconferencing to connect participants with S&Es and to collaborate with S&Es on lesson plans resulted in deep and nuanced teacher awareness of STEM careers and research in the Army and DoD. Other notable successes for the year include the continued high participation rate for females, continued growth in participants' learning about STEM jobs/careers, growth in participants' awareness of and enthusiasm for AEOP, and reports of classroom implementation of strategies participants learned during RESET. While these successes are commendable, there are some areas that remain with potential for growth and/or improvement. The evaluation team therefore offers the following recommendations for FY21 and beyond:

AEOP Priority: Broaden, deepen, and diversify the pool of STEM talent in support of our Defense Industry Base

While the program continues to grow, several participants reported learning about the program either through personal acquaintances or by broad-based Google searches rather than as the result of targeted marketing and publicity. Expanding the capacity of the program and diversifying marketing strategies may therefore broaden the reach of RESET. Participants' comments indicating their disappointment with not being able to complete an on-site research experience highlights the impact these experiences can have. These comments, along with other participants' suggestions that all participants can work with S&Es and those participants have the opportunity to meet with S&Es in person, suggest that expanding relationships with Army labs and creating new and innovative ways for participants to connect with S&Es could enhance participants' learning experiences.

AEOP Priority: Support and empower educators with unique Army research and technology resources

Given some participants' reluctance to try to implement their lesson plans in virtual formats, it may be productive for the program to consider incorporating information about additional technology tools to support teachers' efforts to implement inquiry learning and collaboration in their classrooms. A supplemental focus on teaching research online, providing tools and strategies for how to teach and implement research strategies such as the Lotus Blossom online may be useful for participants. In addition, the program should ensure that the videoconferencing platform used for participant discussion and collaboration has adequate capacity for robust participant discussions and interactions.

AEOP Priority: Develop and implement a cohesive, coordinated, and sustainable STEM education outreach infrastructure across the Army

Because of the demand for on-site experiences, the program may wish to consider placing cohorts of participants at the same location in the future rather than placing Level II participants using the current 1:1 model. In addition, the program may wish to coordinate with the NGSTP initiative to explore whether programs can be planned and/or marketed in a complementary manner. In addition, the programs may wish to collaborate to ensure that content is not replicated between the programs and that the aims of the two programs are not in conflict with one another. RESET and NGSTP may wish to consider whether the two programs could be coordinated to create a teacher professional development pipeline within AEOP.

9

9| Appendices

Appendix A | RESET Evaluation Plan

Participant Interviews

Purpose:

The evaluation for FY20 was qualitative in nature and was intended to refine the delivery of RESET program activities. As per the approved FY20 AEOP APP, the external evaluation of RESET included telephone interviews with participants.

Interviews provide the evaluation team with first-hand opportunities to speak with RESET participants. The information gleaned from these interviews assists us in illustrating and more deeply understanding and describing the program's operation in its first year.

Data Analyses

Qualitative data were compiled and analyzed after all data collection concluded. Emergent coding was used for the qualitative data to identify the most common themes in responses.

Appendix B | FY20 RESET Participant Interview Protocol

Facilitator: My name is [evaluator] and I'd like to thank you for talking with today. I'm excited to learn more about your experiences in RESET. I sent along an information sheet with details about our evaluation; do you have any questions about that or anything else? I will ask you a series of questions about your RESET experience. The interview should take no more than 30 minutes.
I will be audio recording our interview today for note taking purposes. Do I have your permission to audio record our conversation?

Key Questions:

1. **Please describe briefly your background, including the numbers of years you have been teaching, and tell me a bit about your current teaching assignment.**
2. **Did you apply for RESET as a Level I, II, or III participant?**
3. **How did you learn about RESET?**
4. **Please describe to me what the primary activities were in the RESET program that you participated in this past year?**
5. **Did you work with a mentor as a remote intern?**
    a) With what laboratory or center did you work?
    b) What kinds of activities did you do?
    c) Will you/Did you incorporate elements of your research experience into your classroom? How?
6. **What did you think about the online component of the program?**
    - Will you/Did you incorporate elements of your online learning experience into your classroom? How?
7. **When you think about RESET, what kind of value does this program add**?
    a) How do you think you benefitted from participating in RESET?
    b) How do you think your students will benefit from your participation?
    c) What were the best parts about the program?
    d) What aspects of the program could be improved?

One of the primary sponsors of the RESET program is the Army Educational Outreach Program (AEOP). The AEOP needs specific information to improve programs and defend funding for its outreach programs.

8. **We need to understand more about how RESET is helping participants know more about STEM career opportunities in the Department of Defense, especially civilian positions. Did you experience any efforts by RESET to educate participants about the Army, DoD, or careers in the DoD? Please explain.**

The AEOP sponsors a wide range of national STEM outreach programs that your students may qualify for.

9. **The AEOP needs to know if RESET is teaching participating teachers about the other STEM outreach programs that it sponsors.**

    a) First, are you aware of the other programs offered by the AEOP? (e.g., e-CYBERMISSION, JSS, JSHS, REAP, SEAP, etc.)

    b) Do your students participate in any of the programs?

    c) Have you seen any efforts at RESET to educate participants about the other AEOP programs?

10. **Last Chance - Have we missed anything? Tell us anything you want us to know that we didn't ask about.**