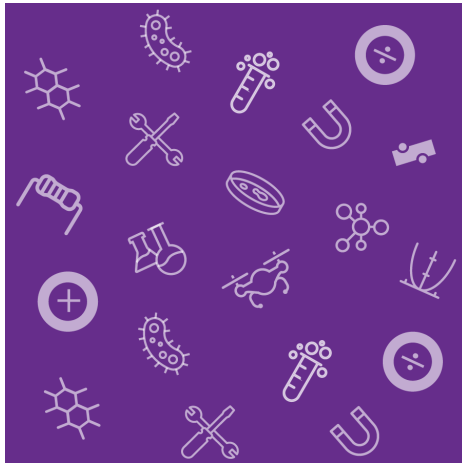IT STARTS HERE. ⭐

ARMY EDUCATIONAL OUTREACH PROGRAM

RESET

2019 Annual Program Evaluation Report
Executive Summary

July 2020

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ARMY EDUCATIONAL
OUTREACH PROGRAM

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2 | Executive Summary

Research Experiences for STEM Educators and Teachers (RESET) 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. The goal of this program is to reinforce teachers' content knowledge through research experiences and interactions with Army and Department of Defense scientists and engineers. Selected teachers participate in on-line learning as cohorts, with a subset of the cohorts selected to conduct research on-site with mentor Army scientists or engineers. The first part of the collaborative online learning module (Level I), called Introduction to Research, is conducted over 30 hours during the span of a month. A subset of the online-learning cohort, Level II participants, travel to Army research laboratories to conduct research with Army scientist or engineers for four weeks (160 hours) of mentored experiential learning. While at the labs, Level II participants stay in touch with the initial cohort and share what they are learning. At the end of the summer, the full cohort reconvenes online for another 30 hours to collaboratively translate their knowledge and experience into enhanced STEM curricula and enriched learning experiences for students. Teachers who have completed Level II activities are eligible to act as Level III facilitators of the online component of RESET.

In FY19, 22 teachers participated in RESET; 15 of these were Level I participants, 5 were Level II participants, and 2 were Level III facilitators.

RESET 2019 Fast Facts	
Description	RESET provides a summer research experience at participating Army Laboratories and on-line for teachers and educators across the nation. The goal is to reinforce teachers' content knowledge through research experiences and interactions with Army and DoD scientists and engineers and to support teacher participants as they translate this knowledge and experience into enhanced STEM research curricula for use in their classroom.
Participant Population	Middle school and high school STEM educators
Number of Applicants/Teachers	24

Number of Participants	22
Placement Rate (percentage)	92%
Number of Adults	25
Number of Army S&Es	3
Number of Army/DoD Research Laboratories	2
Number of K–12 Teachers	22
Number of K–12 Schools	20
Number of K–12 Schools — Title I	15
Number of Colleges/Universities	1
Number of Other Collaborating Organizations	1
Total Cost	$128,631
Total Travel	$27,699
Participant Travel	$24,583
Total Awards	$47,750
Student Awards/Stipends	$47,750
Adult/Teacher/Mentor Awards	$0
Cost Per Participant	$5,847

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3| Summary of Findings and Recommendations

The following is summary of findings from the FY19 RESET evaluation, with findings aligned to the 3 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

RESET participants were primarily female (73%). Less than half of participants (41%) were White, compared with 2018 when (50%) were White. The next most commonly reported race/ethnicity was Black or African American (23%, compared to 30% in 2018). Three participants (14%) were Hispanic Latino (10% in 2018), and 3 (14%) were Asian). These teachers represented 20 different K-12 schools, 15 of which were Title I status schools (compared to 7 in 2018). Half of the participants reported teaching at a suburban school (compared to 30% in 2018), and 41% at urban schools (35% in 2018). Two teachers (9%) reported teaching at rural schools.

Fewer applications were received in 2019 compared to 2018 (27 and 24 respectively). The number of enrolled participants increased from 20 in 2018 to 22 in 2019, however.

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

Teachers interviewed all had positive feedback about their RESET experiences and were able to articulate ways that they would apply their learning, both from the online portion of the program and the on-site portion, in their classrooms. In contrast to 2018 findings, when nearly all teachers shared how they would apply their learning in specific, content-related ways, most participants cited their implementation as primarily procedural, implementing the Legacy Cycle and lotus blossom method to teach their students how to conduct research or as a framework for project-based learning activities. The one teacher who noted that she would use the lesson plan created with her online cohort added as a caveat that it would

be implemented in her science classes at the end of the school year, after standardized and end-of-course testing were complete.

Teachers valued the communities of practice they formed during RESET. Of particular value was the opportunity to share ideas and challenges about their classroom practice and gain insight with others who work in different practice settings. Several RESET participants expressed a desire for expanded cohorts online. In addition to online communities of practice, teachers expressed interest in face-to-face contact with other teachers, pondering ways that cohorts could meet in person or synchronously online. One participant also proposed the idea of on-site cohorts of teachers for Level II participants. Two participants commented on the value of RESET participants mentoring other teachers, either in Level II on-site research experiences or by using the resources and knowledge they gained from RESET to deliver professional development to other teachers.

Level II interview participants all had positive things to say about their on-site experiences at Army labs. Participants cited as benefits experiencing real-world research, working collaboratively with STEM research professionals, and the credibility they gain from being able to cite these experiences in their own classrooms. All were enthusiastic about sharing details of their on-site research experiences with their students, and one even proposed taking students to an Army lab to enable students to gain real-world research experience first-hand. The improvements suggested for the on-site component of the program were primarily administrative in nature, including suggestions to streamline funding, provide funding in phases, or require teachers to fund a portion of the experience themselves to indicate commitment. Level II participants also suggested novel ways to structure on-site experiences such as placing a cohort of teachers at a single lab and providing shorter duration lab experiences by placing RESET teachers as GEMS resource teachers.

Participants also cited several benefits of the online component of RESET. These included the value of collaboration and communities of practice, learning about the research process and research strategies, and instruction that was sensitive to participants' varied practice settings. Participants' suggestions for improvements included suggestions for the structure of the course such as lengthening the duration of the online component while shortening the weekly time commitment, providing additional online modules, providing additional ways for participants to connect with one another either online or in person, and increasing the numbers of teachers in each cohort. In addition, RESET teachers suggested providing hands-on activities, feedback on the final project, and more information about careers.

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

Most participants reported having some familiarity with STEM careers in the Army or DoD either through their onsite experiences or through information from the online component of the program. Level II participants were most impacted by their on-site experiences and cited the value of learning first-hand how researchers collaborate and some indicated that they had previously been unaware that the DoD employs civilians.

Most RESET teachers also reported being familiar with other AEOPs, primarily through their experiences in the online component of the program. One teacher reported learning about RESET through eCYBERMISSION while another learned about JSHS through RESET, suggesting that RESET is becoming integrated into the infrastructure of the AEOP pipeline.

Recommendations for FY20 Program Improvement/Growth

Evaluation findings indicate that RESET was perceived favorably by participating teachers, and the addition of Level III facilitators to the program has resulted in improved communication in the online portion of the program by providing additional points of contact for participants. Notable successes for the year include the continued high participation rate for females, growth in participants' learning about STEM jobs/careers, 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 FY20 and beyond:

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

As in FY18, RESET should explore options for aligning its and funding cycle more closely with educators'. This may result in an increased number of participants, since teachers in interviews noted that the application process seemed "last minute" for teachers and did not accord well with school cycles.

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

Participants had several suggestions of how to utilize their experiences to reach other teachers. Ideas that were shared included having RESET teachers mentor other teachers in STEM, as well as providing professional development to others. It is recommended that RESET consider these options as methods to not only grow RESET but to also expand the reach of other AEOP programs.

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

RESET participants suggested some programmatic changes to the delivery of the program. One suggestion was to expand the cohorts online and include more face-to-face in person and synchronous opportunities online. RESET participants who were engaged in experiences at Army labs suggested the use of cohorts placed at the same location rather than the current 1:1 model – to expand the learning opportunities and collaboration. The evaluation team suggests RESET consider these suggestions in future programming.