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Army Educational Outreach Program

Research Experiences for STEM Educators and Teachers (RESET)

2017 Annual Program Evaluation Report

PART 1: Executive Summary

January 2018

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ARMY EDUCATIONAL OUTREACH PROGRAM

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Research Experiences for STEM Educators and Teachers (RESET) is a program sponsored by the U.S Army and managed by Tennessee Technological University (Tennessee Tech). As part of AEOP's renewed effort in empowering educators by providing meaningful research experiences, AEOP launched RESET in 2016. RESET provides educators with online learning experiences and summer research experience at participating Army laboratories and research centers. The goal of RESET is to reinforce teachers' content knowledge through research experience 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 a mentor Army scientist or engineer. At the completion of the program, teachers translate this knowledge and experience into enhanced science, technology, engineering and mathematics (STEM) research curricula and enriched learning for their students.

This report documents the evaluation of the FY17 RESET program. The evaluation addressed questions related to program strengths and challenges, and benefits to participants. The assessment strategy for RESET included interviews with 5 participating teachers.

2017 Fast Facts	
Description	RESET provides a summer research experience at participating Army laboratories and on-line for teachers and educators from "high need" areas (based on AEOP definition) 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	25 full, 128 partial
Number of RESET participants	20
Placement Rate (percentage)	76%
Submission Completion Rate	100%
Number of Army S&Es	6
Number of Army/DoD Research Laboratories	3
Number of K–12 Teachers	19

Number of K–12 Schools	19
Number of K–12 Schools — Title I	10
Number of Colleges/Universities	1
Number of Other Collaborating Organizations	7
Administrative Costs	$55,200
Participant Stipends	$83,068
Total Cost	$141,661
Cost Per Participant	$7,083

Summary of Findings

The FY17 evaluation of RESET included collection of interview data reflecting participants' perceptions of program processes and activities and program information provided by program administrators. A summary of findings is provided here, with findings aligned to the 3 AEOP key priorities.

2017 RESET Evaluation Findings	
Priority 1: STEM Literate Citizenry *Broaden, deepen, and diversify the pool of STEM talent in support of our Defense Industry Base.*	
Finding #1	RESET participants were primarily female and White, although 11% of participants were Black or African American (compared to 20% in 2016) and 16% were Hispanic or Latino (0% in 2016). These teachers represented 19 different K-12 schools, 10 of which were Title I status schools. Nearly half of teachers came from suburban schools (47% suburban, 37% urban; 16% rural in 2017 compared to 20% suburban, 50% urban, and 30% rural in 2016).
Finding #2	The number of full applications received (25) and total enrollment (19) were similar to 2016 when 24 full applications were received and 20 teachers enrolled. It is noteworthy that in 2017 the number of partial applications received jumped to 128 (up from 1 in 2016), suggesting that increasing numbers of teachers are learning about RESET through AEOP marketing efforts.
Priority 2: STEM Savvy Educators *Support and empower educators with unique Army research and technology resources.*	

Finding #1	Interviewed participants focused on the research component of their RESET experiences. Participants appreciated the hands-on experiences in the Army labs. Teachers' ideas about incorporating their research experiences into their teaching practice focused primarily on procedure rather than on content. For example, teachers indicated that they would incorporate research methods, teamwork strategies, data organization strategies, and enhanced career preparation information into their teaching. It was not always clear to teachers how to translate the content area of their research experiences into classroom experiences for their students, however, and, as one teacher pointed out, there may be a need to "bridge the gap" between the research experience and classroom practice. One suggestion for bridging this gap was to give the teachers more choice in their research project placement to ensure its relevance to their classroom practice. Another suggestion was to use experienced RESET teachers to guide new participants on how to create curriculum based upon laboratory experiences.
Finding #2	Suggested program improvements included disseminating information earlier to allow for Level II participants to plan more effectively; providing more Army lab placement options; matching teachers' content areas and researchers' projects more closely; ensuring that mentors understand their roles; and improving communication between participants and program administrators.
Priority 3: Sustainable Infrastructure *Develop and implement a cohesive, coordinated, and sustainable STEM education outreach infrastructure across the Army.*	
Finding #1	The 3 interview participants who had learned about DoD STEM careers during RESET credited their on-site experiences with this exposure. The practice of sharing journals during the final segment of the online course component was cited as another potentially useful way to share careers Level II participants had learned about with other cohort participants.
Finding #2	Most interview participants were aware of other AEOPs before their RESET experience and did not discuss AEOPs while enrolled in RESET. One participant had actively learned about AEOPs through a lab education outreach coordinator during her Level II on-site experience.

Responsiveness to FY17 Evaluation Recommendations

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

FY16 Finding: RESET participants were primarily female and White, although 20% of participants were Black or African American. No data was available on the Title I status of schools in which teachers were employed

(this item will be added to FY17 registration materials), however half of participants taught in urban schools. The RESET participants for 2016 were from six states: Florida (5), Michigan (1), Montana (1), Pennsylvania (2), Tennessee (10), Virginia (1). While six states were represented, the majority come from two states, Florida and Tennessee, suggesting that the overall participant population may have had limited geographic diversity in this first program year.

RESET FY17 Efforts and Outcomes:

FY16 Finding: The primary method employed to recruit participants was to reach out to teachers through the National Science Teachers Association (NSTA). Recruitment was complicated in FY16 by the short timeframe for recruitment. In future years, the program plans to collaborate with the AEOP consortium partner base to reach teachers involved in AEOPs such as eCybermission and Junior Solar Sprint. The program has developed a rubric for teacher selection although no details of the criteria for selection were provided in the APR.

RESET FY17 Efforts and Outcomes: According to the FY17 RESET APR, no action was taken in FY17. In FY18 the rubric will be posted in the CVENT application site for educators to review prior to application to understand the weighting/scoring process to help guide their time completing the application.

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

FY16 Finding: Program administrators acknowledged in the APR that there were slips in scheduling during the FY16 program year. These slips were due to factors such as delays in activation of funds at Tennessee Tech, the need to recruit mentors at Army/DoD sites, a lack of marketing materials for the program, and the short timeframe for applicant registration.

RESET FY17 Efforts and Outcomes: in FY17 a weekly listing of discussion topics and reading resources, as well as links to recorded sessions were provided via email to the RESET cohort. The RESET staffing model had insufficient time allocated for constant communication, once the GA left the position. In FY18, a new staffing model is being proposed to address this weakness.

FY16 Finding: RESET administrators plan to address the issues in security clearance and computer access by creating a flowchart to determine what sort of security clearance and IT access are necessary for teachers. In addition, earlier selection of participants in FY17 will permit a longer timeframe in which security clearance activities can be completed.

RESET FY17 Efforts and Outcomes: In FY17, the IPA asked mentors what level of security would be required to ensure we were not asking for CAC approval if it would not be needed. Also, the mentors were asked to identify who the lab contact was that would help the Level II educators understand the process required at the lab. In FY18, the IPA will re-contact the site mentors for FY16 and FY17 and ask them to

review a summary developed for this process across the participating Army Lab site, to create a dedicated document explaining the process for future Level II participants.

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

FY16 Finding: While several of the interview participants had heard of AEOPs, three had no knowledge of other AEOPs. Participants learned about AEOPs either through on-site research experiences or through the AEOP website. Some efforts at cross-program collaboration between RESET and eCybermission, as eCybermission encouraged participating teachers to apply for RESET at a NSTA conference and plans to reach out to RESET teachers with information about eCybermission.

RESET FY17 Efforts and Outcomes: Not addressed in the FY17 APR for RESET.

Recommendations for FY18 Program Improvement/Growth

Evaluation findings indicate that FY17 was a successful year for the RESET program.

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

1. Despite considerable growth in interest in HSAP, evidenced by the nearly 50% increase in applications for FY17, there was a 20% decrease in the actual number of participants in FY17. HSAP failed to meet their enrollment goal of 70 apprentices as a result. HSAP should focus on growing infrastructure to support more potential participation in FY18.

2. The demographics of actual participants in HSAP reveal the program has more work to do to reach a greater percentage of underrepresented students. It is commendable that HSAP has been able to accommodate a majority of female apprentices. However, White and Asian groups are the majority in participants (42% and 25% respectively). This is a slight increase from FY16 in fact, while the percentage of African American students has remained at 15% and Hispanic/Latino apprentices held at 14%. HSAP should invest resources in FY18 to target underrepresented groups more strategically to recruit more diverse participation for the program.

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

In FY17, HSAP apprentices and mentors both echoed findings that have been prevalent across the AEOP portfolio. Only a very few number of participants and mentors are accessing and/or utilizing

AEOP social media, including the website. In regards to HSAP, 63% of mentors and 71% of apprentices did not
experience AEOP social media at all. Therefore, the evaluation team recommends that HSAP work with the consortium members to determine a plan for the future utilization and marketing of AEOP social media and the website.

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

1. The FY17 evaluation findings indicate collective desire of the apprentices and mentors to improve communication across the program. This includes improving the delivery of information from the program leadership to the mentors and site directors, as well as information (program requirements, stipend payments, that is transmitted between AAS/ARO and the apprentices directly. It is recommended that AAS and ARO take steps to examine communication channels and determine how communication can be improved for HSAP.

2. HSAP made progress in growing apprentice awareness of AEOPs, as 97% indicated that they had learned about AEOPs during the program. 74% indicated they were interested in URAP. However, HSAP participants were not made cognizant of some applicable AEOP opportunities during the program in FY17. In fact, 65% of HSAP apprentices had not heard of CQL, and 42% had not heard of the NDSEG Fellowship. Mentors reported that they did not discuss other AEOPs with their apprentices including: JSHS (88%), SEAP (88%), and CQL (92%). It is strongly recommended that HSAP work with their staff and the consortium to develop a plan for marketing and informing participants frequently about other AEOP opportunities and resources.