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Army Educational Outreach Program

eCYBERMISSION

2017 Annual Program Evaluation Report

PART 3: Appendices

April 2018

ARMY EDUCATIONAL OUTREACH PROGRAM

1 | AEOP Consortium Contacts

U.S. Army Contacts

Matthew Willis, Ph.D.
Director, Laboratory Management
Office of the Assistant Secretary of the Army
Acquisition, Logistics, and Technology
matthew.p.willis.civ@mail.mil

Andrea Simmons
Army Educational Outreach Program (AEOP) Director
Office of the Assistant Secretary of the Army
Army for Research and Technology
andrea.e.simmons.ctr@mail.mil

AEOP Cooperative Agreement Manager

Louie Lopez
AEOP Cooperative Agreement Manager
U.S. Army Research, Development, and
Engineering Command (RDECOM)
louie.r.lopez.civ@mail.mil

Battelle Memorial Institute – Lead Organization

David Burns
Project Director, AEOP CA
Director of STEM Innovation Networks
burnsd@battelle.org

eCM Program Administrators

Erin Lester
eCM Program Director
National Science Teachers Association
elester@nsta.org

Sue Whitsett
Principal Investigator
National Science Teachers Association
swhitsett@nsta.org

Evaluation Team Contacts – Purdue University

Carla C. Johnson, Ed.D.
Evaluation Director, AEOP CA
carlacjohnson@purdue.edu

Toni A. Sondergeld, Ph.D.
Assistant Director, AEOP CA
tonisondergeld@metriks.com

Janet B. Walton, Ph.D.
Assistant Director, AEOP CA
walton25@purdue.edu

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3 | Appendix A – FY17 JSS Evaluation Plan

Questionnaires

As per the approved FY17 AEOP APP, the external evaluation of eCM (conducted by Purdue University) includes three post-program questionnaires:

1. AEOP Youth Questionnaire to be completed by student participants of the eCM regional events; and
2. AEOP Youth Questionnaire to be completed by student participants of the eCM national event; and
3. AEOP Team Advisor/Mentor Questionnaire to be completed by research Team Advisors, competition advisors, chaperones, teachers, or others who supported students as they prepared for or participated in eCM national and regional events.

Questionnaires are the primary method of data collection for AEOP evaluation and collect information about participants' experiences with and perceptions of program resources, structures, and activities; potential benefits to participants; and strengths and areas of improvement for programs.

The questionnaires were aligned with:

- Army's strategic plan and AEOP Priorities 1 (STEM Literate Citizenry), 2 (STEM Savvy Educators) *and* 3 (Sustainable Infrastructure);
- Federal guidance for evaluation of Federal STEM investments (e.g., inclusive of implementation and outcomes evaluation, and outcomes of STEM-specific competencies, transferrable competencies, attitudes about/identifying with STEM, future engagement in STEM-related activities, and educational/career pathways);
- Best practices and published assessment tools in STEM education, STEM informal/outreach, and the evaluation/ research communities;
- AEOP's vision to improve the quality of the data collected, focusing on changes in intended student outcomes and contributions of AEOPs like CQL effecting those changes.

The use of common questionnaires and sets of items that are appropriate across programs will allow for comparisons across AEOP programs and, if administered in successive years, longitudinal studies of students as they advance through pipelines within the AEOP. Because the questionnaires incorporate batteries of items from existing tools that have been validated in published research, external comparisons may also be possible. All AEOPs are expected to administer the student and Team Advisor questionnaires provided for their program.

Focus Group Site Visits

As per the approved FY17 AEOP APP, the external evaluation of eCM includes site visit/onsite focus

groups at National Judging & Educational Event (NJ&EE).

Site visits provide the evaluation team with first-hand opportunities to speak with students and their Team Advisors. We are able to observe the AEOPs in action. The information gleaned from these visits assists us in illustrating and more deeply understanding the findings of other data collected (from questionnaires). In total, evaluators' findings are used to highlight program successes and inform program changes so that the AEOPs can be even better in the future.

Evaluation Activities during eCM Site Visits:

- One or two 45 minute focus group with 6-8 youth participants;
- One 45-minute focus group with 6-8 Team Advisors;
- 30-60 minutes to observe the program (specifically, to see students engaged in program activities, preferably with their Team Advisors); and
- 10-15 minute transitions between each evaluation activity for moving groups in and out and providing evaluators with time to organize paperwork and take nature breaks.

Selecting Focus Group Participants:
Evaluators appreciate event administrators' assistance in helping to assemble a diverse group of focus group participants who can provide information about a range of experiences possible in the eCM. Ideally, this assistance is in the form of pre-event notifications of the focus groups, including scheduled dates, times, and locations.

Ideally, each student focus group will be inclusive of

- males and females (equal representation if possible),
- range of grade levels of students,
- range of race/ethnicities of students served by the program, and
- range of STEM interests (if known).

We prefer that students volunteer themselves after receiving the invitation to participate in the focus group, but will pursue students nominated by program staff or Team Advisors. Participants may RSVP to evaluators privately or simply show up at the focus group location; however, sign-up sheets should not be used--if they are publically displayed, they breach participant confidentiality.

A number of different adult participants of eCM--regional directors, national judges, chaperones, and even parents. We encourage any of these groups to participate in the adult focus group and have geared questions to be applicable across groups.

Data Analyses

Quantitative and qualitative data were compiled and analyzed after all data collection concluded. Evaluators summarized quantitative data with descriptive statistics such as numbers of respondents, frequencies and proportions of responses, average response when responses categories are assigned to a 6-point scale (e.g., 1 = "Strongly Disagree" to 6 = "Strongly Agree"), and standard deviations. Emergent coding was used for the qualitative data to identify the most common themes in responses.

Evaluators conducted inferential statistics to study any differences among participant groups (e.g., by gender or race/ethnicity) that could indicate inequities in the eCM program and differences between students who participated only in eCM-R and students who participated in both eCM-R and eCM-N. Statistical significance indicates whether a result is unlikely to be due to chance alone. Statistical significance was determined with t-tests, chi-square tests, and various non-parametric tests as appropriate, with significance defined at $p < 0.05$. Because statistical significance is sensitive to the number of respondents, it is more difficult to detect significant changes with small numbers of respondents. Practical significance, also known as effect size, indicates the magnitude of an effect, and is typically reported when differences are statistically significant. The formula for effect sizes depends on the type of statistical test used, and is specified, along with generally accepted rules of thumb for interpretation, in the body of the report.

4 | Appendix B – Student Focus Group Protocol

Facilitator: My name is [evaluator] and I'd like to thank you for meeting with us today! We are really excited to learn more about your experiences in eCM. In case you have not been in an evaluation interview before, I'd like to give you some ground rules that I like to use in interviews. They seem to help the interview move forward and make everyone a little more comfortable:

1. What is shared in the interview stays in the room.
2. It is important for us to hear the positive and negative sides of all issues.
3. Only one person speaks at a time.
4. This is voluntary - you may choose not to answer any question, or stop participating at any time.
5. We will be audio recording the session for note-taking purposes only. Audio will be destroyed.
6. Do you have any questions before we begin?

Key Questions

1. **Why did you choose to participate in eCM this year?**
    - How did you hear about eCM?
    - Who did you hear about it from?

The Army Educational Outreach Program (AEOP) is a primary sponsor of eCM. We do these interviews to help the AEOP create reports and defend funding for the program. They need specific information to defend the money for the program.

2. **We need to understand more about how eCM is teaching students about STEM career opportunities in the Army and Department of Defense.**
    - During eCM, did you learn anything about STEM careers in the Army or Department of Defense?
    - How did you learn about them (e.g., field trips, invited speakers, other activities, etc.)?
    - Are you interested in pursuing a career in STEM with the Army or Department of Defense?
3. **The AEOP sponsors a wide range of national STEM outreach programs other than eCM. You are definitely eligible to participate in some of these programs and we need to know if you learned about them during eCM.**
    - During eCM, did you learn about any of the outreach programs that the AEOP sponsors? (SMART, NDSEG, HSAP, etc.)
    - How did you learn about them?
    - Do you think that you will try to participate in any of those programs?
4. **Tell us about your experiences in eCM this year.**
    - What, specifically do you think you got out of participating in eCM?
    - How do your experiences in eCM compare to your school experiences in STEM?
    - What would you say was the biggest benefit you gained from participating in eCM?
5. **Do you have any suggestions for improving eCM for other students in the future?**
6. **Last Chance - Have we missed anything? Tell us anything you want us to know that we didn't ask about.**

5 | Appendix C – Team Advisor FG Protocol

Facilitator: My name is [evaluator] and I'd like to thank you for meeting with us today! We are really excited to learn more about your experiences in eCM. In case you haven't been in a focus group before, I'd like to give you some ground rules that I like to use in focus groups. They seem to help the group move forward and make everyone a little more comfortable:

1. What is shared in the room stays in the room.
2. Only one person speaks at a time.
3. If you disagree please do so respectfully.
4. It is important for us to hear the positive and negative sides of all issues.
5. We will be audio recording the session for note-taking purposes only. Audio will be destroyed.
6. Do you have any questions about participating in the focus group?

1. **When you think about eCM, what kind of value does this program add**?
    - How do you think students benefit from participating in eCM?
    - Can you think of a particular student or group of students that benefit the most from eCM?
    - How have you benefited from participating in eCM?

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

2. **We need to understand more about how eCM is helping students know more about STEM career opportunities in the Department of Defense, especially civilian positions.**
    - Have you seen any efforts by eCM to educate participants about the Army, DoD, or careers in the DoD?
    - What strategies seem to be the most effective for eCM students?
    - Do you have any suggestions for helping eCM teach students about careers in the DoD?

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

3. **The AEOP needs to know if eCM is teaching students about the other STEM outreach programs that it sponsors.**
    - First, are you aware of the other programs offered by the AEOP? (e.g., REAP, CQL, SMART, etc)
    - Have you seen any efforts at eCM to educate adults or students about the other AEOP programs?
    - What seems to work the best? The worst?
    - Any suggestions for helping the AEOP educate these students about the other programs?

4. **The AEOP is trying to make sure that its programs become more effective at reaching adult and youth participants from underserved and underrepresented groups (racial/ethnic groups, low SES, etc.).**
    - Have you seen any efforts by eCM to help engage underserved or underrepresented groups of adults and youth?
    - What strategies seem to work the best? The worst?
    - Any suggestions for helping eCM reach new populations of adult and youth participants?

5. **What suggestions do you have for improving eCM?**
6. **Last Chance - Have we missed anything? Tell us anything you want us to know that we didn't ask about.**

6 | Appendix D – Student Participant Questionnaire

Contact Information		
Please verify the following information:		
*First Name:		
*Last Name:		
*Email Address:		
All fields with an asterisk (*) are required.		

*1. Do you agree to participate in this survey? (required)(*Required)		
Select one.		
○	Yes, I agree to participate in this survey	
○	No, I do not wish to participate in this survey	Go to end of chapter

*2. What grade will you start in the fall? (select one)(*Required)	
Select one.	
○	6th
○	7th
○	8th
○	9th
○	Other, (specify)::

*4. What is your race or ethnicity?(*Required)
Select one.

○	Hispanic or Latino
○	Asian
○	Black or African American
○	Native American or Alaska Native
○	Native Hawaiian or Other Pacific Islander
○	White
○	Choose not to report
○	Other race or ethnicity, (specify)::

*5. Do you get free or reduced lunches at school?(*Required)

Select one.

○	Yes
○	No
○	Choose not to report

*6. How often did you do each of the following in science, technology, engineering, and/or mathematics (STEM) classes at school before participating in eCybermission?(*Required)

Select one per row.

	Not at all	*At least once*	*Monthly*	*Weekly*	*Every day*
*Work with a STEM researcher or company on a real world STEM research project	○	○	○	○	○
*Work with a STEM researcher on a research project topic assigned by my teacher	○	○	○	○	○
*Design my own research or investigation based on my own question(s)	○	○	○	○	○
*Present my STEM research to a panel of judges from industry or the military	○	○	○	○	○
*Interact with STEM researchers	○	○	○	○	○
*Use laboratory procedures and tools	○	○	○	○	○
*Design and carry out an investigation	○	○	○	○	○
*Analyze data or information and draw conclusions	○	○	○	○	○
*Work collaboratively as part of a team	○	○	○	○	○
*Build or make a computer model	○	○	○	○	○
*Solve real world problems	○	○	○	○	○

*7. How often did you do each of the following in science, technology, engineering and/or mathematics (STEM) classes during or after eCybermission this year?(*Required)
Select one per row.

	Not at all	*At least once*	*Monthly*	*Weekly*	*Every day*
*Work with a STEM researcher or company on a real world STEM research project	○	○	○	○	○
*Work with a STEM researcher on a research project topic assigned by my teacher	○	○	○	○	○
*Design my own research or investigation based on my own question(s)	○	○	○	○	○
*Present my STEM research to a panel of judges from industry or the military	○	○	○	○	○
*Interact with STEM researchers	○	○	○	○	○
*Use laboratory procedures or tools	○	○	○	○	○
*Identify questions or problems to investigate	○	○	○	○	○
*Design and carry out an investigation	○	○	○	○	○
*Analyze data or information and draw conclusions	○	○	○	○	○
*Work collaboratively as part of a team	○	○	○	○	○
*Build or make a computer model	○	○	○	○	○
*Solve real world problems	○	○	○	○	○

*8. The list below includes effective teaching and mentoring strategies. From the list, please indicate which strategies that your teacher/mentor(s) used when working with you in eCybermission:(*Required)

Select one per row.

	Yes - my mentor used this strategy with me	*No - my mentor did not use this strategy with me*
*Helped me become aware of STEM in my everyday life	○	○
*Helped me understand how I can use STEM to improve my community	○	○
*Used a variety of strategies to help me learn	○	○
*Gave me extra support when I needed it	○	○
*Encouraged me to share ideas with others who have different backgrounds or viewpoints than I do	○	○
*Allowed me to work on a team project or activity	○	○
*Helped me learn or practice a variety of STEM skills	○	○
*Gave me feedback to help me improve in STEM	○	○
*Talked to me about the education I need for a STEM career	○	○
*Recommended Army Educational Outreach Programs that match my interests	○	○
*Discussed STEM careers with the DoD or government	○	○

*9. How much did each of the following resources help you learn about Army Educational Outreach Programs (AEOPs)?(*Required)

Select one per row.

	Did not experience	*Not at all*	*A little*	*Somewhat*	*Very much*
*Army Educational Outreach Program (AEOP) website	○	○	○	○	○
*AEOP on Facebook, Twitter, Pinterest or other social media	○	○	○	○	○
*AEOP brochure	○	○	○	○	○
*My eCybermission teacher or mentor(s)	○	○	○	○	○
*Participation in eCybermission	○	○	○	○	○

*10. How much did each of the following resources help you learn about STEM careers in the Army or Department of Defense (DoD)?(*Required)

Select one per row.

	Did not experience	*Not at all*	*A little*	*Somewhat*	*Very much*
*Army Educational Outreach Program (AEOP) website	○	○	○	○	○
*AEOP on Facebook, Twitter, Pinterest or other social media	○	○	○	○	○
*AEOP brochure	○	○	○	○	○
*My eCybermission teacher or mentor(s)	○	○	○	○	○
*Participation in eCybermission	○	○	○	○	○

*11. How SATISFIED were you with the following eCybermission features?(*Required)

Select one per row.

	Did not experience	*Not at all*	*A little*	*Somewhat*	*Very much*
*Applying or registering for the program	○	○	○	○	○
*Submission process	○	○	○	○	○
*Value of Cyber Guide live chat	○	○	○	○	○
*Variety of STEM mission folder challenges available	○	○	○	○	○
*Value of Cyber Guides feedback	○	○	○	○	○
*Value of Cyber Guides forum	○	○	○	○	○
*Educational materials (e.g., workbooks, online resources, etc.) used during program activities	○	○	○	○	○
*eCybermission website	○	○	○	○	○
*Mission control (phone) response time	○	○	○	○	○
*Mission control (email) response time	○	○	○	○	○

*12. As a result of your eCybermission experience, how much did you GAIN in the following areas?(*Required)

Select one per row.

	No gain	*Small gain*	*Medium gain*	*Large gain*
*In depth knowledge of a STEM topic(s)	○	○	○	○
*Knowledge of research conducted in a STEM topic or field	○	○	○	○
*Knowledge of research processes, ethics, and rules for conduct in STEM	○	○	○	○
*Knowledge of how scientists and engineers work on real problems in STEM	○	○	○	○
*Knowledge of what everyday research work is like in STEM	○	○	○	○

*13. Which category best describes the focus of your eCybermission project?(*Required)

Select one.

○	Scientific inquiry
○	Engineering design

*14. As a result of your eCybermission experience, how much did you GAIN in the following areas?(*Required)

Select one per row.

If answered, go to question number 16.

	No gain	*Small gain*	*Medium gain*	*Large gain*
*Asking a question that can be answered with one or more scientific experiments	○	○	○	○
*Using knowledge and creativity to suggest a testable explanation (hypothesis) for an observation	○	○	○	○
*Making a model of an object or system showing its parts and how they work	○	○	○	○
*Carrying out procedures for an experiment and recording data accurately	○	○	○	○
*Using computer models of objects or systems to test cause and effect relationships	○	○	○	○
*Organizing data in charts or graphs to find patterns and relationships	○	○	○	○
*Considering different interpretations of data when deciding how the data answer a question	○	○	○	○
*Supporting an explanation for an observation with data from experiments	○	○	○	○
*Defending an argument that conveys how an explanation best describes an observation	○	○	○	○
*Integrating information from technical or scientific texts and other media to support your explanation of an observation	○	○	○	○
*Communicating about your experiments and explanations in different ways (through talking, writing, graphics, or mathematics)	○	○	○	○

*15. As a result of your eCybermission experience, how much did you GAIN in the following areas?(*Required)

Select one per row.

	No gain	*Small gain*	*Medium gain*	*Large gain*
*Defining a problem that can be solved by developing a new or improved object, process, or system	○	○	○	○
*Using knowledge and creativity to propose a testable solution for a problem	○	○	○	○
*Making a model of an object or system to show its parts and how they work	○	○	○	○
*Carrying out procedures for an experiment and recording data accurately	○	○	○	○
*Using computer models of an object or system to investigate cause and effect relationships	○	○	○	○
*Considering different interpretations of the data when deciding if a solution works as intended	○	○	○	○
*Organizing data in charts or graphs to find patterns and relationships	○	○	○	○
*Supporting a solution for a problem with data from experiments	○	○	○	○
*Defend an argument that conveys how a solution best meets design criteria	○	○	○	○
*Integrating information from technical or scientific texts and other media to support your solution to a problem	○	○	○	○
*Communicating information about your design experiments and solutions in different ways (through talking, writing, graphics, or math equations)	○	○	○	○

*16. As a result of your eCybermission experience, how much did you GAIN in each of the skills/abilities listed below?(*Required)

Select one per row.

	No gain	*Small gain*	*Medium gain*	*Large gain*
*Sticking with a task until it is finished	○	○	○	○
*Making changes when things do not go as planned	○	○	○	○
*Working well with students from all backgrounds	○	○	○	○
*Including others' perspectives when making decisions	○	○	○	○
*Communicating effectively with others	○	○	○	○
*Viewing failure as an opportunity to learn	○	○	○	○

*17. As a result of your eCybermission experience, how much did you GAIN in the following areas?(*Required)

Select one per row.

	No gain	*Small gain*	*Medium gain*	*Large gain*
*Interest in a new STEM topic	○	○	○	○
*Deciding on a path to pursue a STEM career	○	○	○	○
*Sense of accomplishing something in STEM	○	○	○	○
*Feeling prepared for more challenging STEM activities	○	○	○	○
*Thinking creatively about a STEM project or activity	○	○	○	○
*Desire to build relationships with mentors who work in STEM	○	○	○	○
*Connecting a STEM topic or field to my personal values	○	○	○	○

*18. As a result of your eCybermission experience, are you MORE or LESS likely to engage in the following activities in science, technology, engineering, or mathematics (STEM) outside of school requirements or activities?(*Required)

Select one per row.

	Much less likely	*Less likely*	*About the same before and after*	*More likely*	*Much more likely*
*Watch or read non-fiction STEM	○	○	○	○	○
*Tinker (play) with a mechanical or electrical device	○	○	○	○	○
*Work on solving mathematical or scientific puzzles	○	○	○	○	○
*Use a computer to design or program something	○	○	○	○	○
*Talk with friends or family about STEM	○	○	○	○	○
*Mentor or teach other students about STEM	○	○	○	○	○
*Help with a community service project related to STEM	○	○	○	○	○
*Participate in a STEM camp, club, or competition	○	○	○	○	○
*Take an elective (not required) STEM class	○	○	○	○	○
*Work on a STEM project or experiment in a university or professional setting	○	○	○	○	○

*19. After you have participated in eCybermission, how far do you want to go in school?(*Required)
Select one.

○	Graduate from high school
○	Go to a trade or vocational school
○	Go to college for a little while
○	Finish college (get a Bachelor's degree)
○	Get more education after college

*20. How interested are you in participating in the following programs in the future?(*Required)
Select one per row.

	I've never heard of this program	*Not at all*	*A little*	*Somewhat*	*Very much*
*Camp Invention	○	○	○	○	○
*eCYBERMISSION	○	○	○	○	○
*Junior Solar Sprint (JSS)	○	○	○	○	○
*Gains in the Education of Mathematics and Science (GEMS)	○	○	○	○	○
*UNITE	○	○	○	○	○
*Junior Science & Humanities Symposium (JSHS)	○	○	○	○	○
*Science & Engineering Apprenticeship Program (SEAP)	○	○	○	○	○
*Research & Engineering Apprenticeship Program (REAP)	○	○	○	○	○
*High School Apprenticeship Program (HSAP)	○	○	○	○	○
*College Qualified Leaders (CQL)	○	○	○	○	○
*GEMS Near Peer Mentor Program	○	○	○	○	○
*Undergraduate Research Apprenticeship Program (URAP)	○	○	○	○	○
*Science Mathematics, and Research for Transformation (SMART) College Scholarship	○	○	○	○	○
*National Defense Science & Engineering Graduate (NDSEG) Fellowship	○	○	○	○	○

*21. How many jobs/careers in STEM did you learn about during eCybermission?(*Required)
Select one.

○	None
○	1
○	2
○	3
○	4
○	5 or more

*22. How many Army or Department of Defense (DoD) STEM jobs/careers did you learn about during eCybermission?(*Required)

Select one.

○	None
○	1
○	2
○	3
○	4
○	5 or more

*23. How much do you agree or disagree with the following statements about Department of Defense (DoD) researchers and research:(*Required)

Select one per row.

	Strongly Disagree	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
*DoD researchers advance science and engineering fields	○	○	○	○	○
*DoD researchers develop new, cutting edge technologies	○	○	○	○	○
*DoD researchers solve real-world problems	○	○	○	○	○
*DoD research is important to society	○	○	○	○	○

*24. Which of the following statements describe you AFTER participating in the eCybermission program?(*Required)

Select one per row.

	Disagree - This did not happen	*Disagree - This happened but not because of eCybermission*	*Agree - eCybermission somewhat made me feel this way*	*Agree - eCybermission was primary reason*
*I am more confident in my STEM knowledge, skills, and abilities	○	○	○	○
*I am more interested in participating in STEM activities outside of school requirements	○	○	○	○
*I am more aware of other AEOPs	○	○	○	○
*I am more interested in participating in other AEOPs	○	○	○	○
*I am more interested in taking STEM classes in school	○	○	○	○
*I am more interested in earning a STEM degree	○	○	○	○
*I am more interested in pursuing a career in STEM	○	○	○	○
*I am more aware of Army or DoD STEM research and careers	○	○	○	○
*I have a greater appreciation of Army or DoD STEM research	○	○	○	○
*I am more interested in pursuing a STEM	○	○	○	○

career with the Army or DoD				

25. What are the three most important ways that eCybermission has helped you?	
Benefit #1:	
Benefit #2:	
Benefit #3:	

26. What are the three ways that we could make eCybermission better?	
Improvement #1:	
Improvement #2:	
Improvement #3:	

27. Please tell us about your overall satisfaction with your eCybermission experience.

7 | Appendix E – Team Advisor Questionnaire

Contact Information		
Please verify the following information:		
*First Name:		
*Last Name:		
*Email Address:		
All fields with an asterisk (*) are required.		

*1. Do you agree to participate in this survey? (required)(*Required)	
Select one.	
○ Yes, I agree to participate in this survey	(Go to question number 2.)
○ No, I do not wish to participate in this survey	Go to end of chapter

*2. Please provide your personal information below: (required)(*Required)	
*First Name::	
*Last Name::	

3. Please provide your email address: (optional)

*4. What is your gender?(*Required)
Select one.
○ Male
○ Female
○ Choose not to report

*5. What is your race or ethnicity?(*Required)

Select one.

○	Hispanic or Latino
○	Asian
○	Black or African American
○	Native American or Alaska Native
○	Native Hawaiian or Other Pacific Islander
○	White
○	Choose not to report
○	Other race or ethnicity, (specify)::

*6. Which of the following BEST describes the organization you work for? (select ONE)(*Required)

Select one.

○	No organization
○	School or district (K-12)
○	State educational agency
○	Institution of higher education (vocational school, junior college, college, or university)
○	Private Industry
○	Department of Defense or other government agency
○	Non-profit
○	Other, (specify):

*7. Which of the following BEST describes your current occupation (select ONE)(*Required)

Select one.

○	Teacher	(Go to question number 8.)
○	Other school staff	(Go to question number 8.)
○	University educator	(Go to question number 11.)
○	Scientist, Engineer, or Mathematician in training (undergraduate or graduate student, etc.)	(Go to question number 11.)
○	Scientist, Engineer, or Mathematics professional	(Go to question number 11.)
○	Other, (specify)::	(Go to question number 11.)

*8. What grade level(s) do you teach (select all that apply)?(*Required)

Select all that apply.

☐	Upper elementary
☐	Middle school
☐	High school

*9. Which best describes the location of your school?(*Required)

Select one.

○	Urban (city)
○	Suburban
○	Rural (country)
○	Frontier or tribal school
○	Home School
○	Online School
○	Department of Defense School (DeDEA or DoDDS) Choose not to report

*10. Which of the following subjects do you teach? (select ALL that apply)(*Required)

Select all that apply.

☐	Upper elementary
☐	Physical science (physics, chemistry, astronomy, materials science, etc.)
☐	Biological science
☐	Earth, atmospheric, or oceanic science
☐	Environmental science
☐	Computer science
☐	Technology
☐	Engineering
☐	Mathematics or statistics
☐	Medical, health, or behavioral science
☐	Social Science (psychology, sociology, anthropology)
☐	Other, (specify)::

*11. Which of the following best describes your primary area of research?(*Required)

Select one.

○	Physical science (physics, chemistry, astronomy, materials science, etc.)
○	Biological science
○	Earth, atmospheric, or oceanic science
○	Environmental science
○	Computer science
○	Technology
○	Engineering
○	Mathematics or statistics
○	Medical, health, or behavioral science
○	Social Science (psychology, sociology, anthropology)
○	N/A - I am a teacher not STEM researcher
○	Other, (specify)::

*12. In which of the eCybermission regions did you participate? (Select ONE)(*Required)	
Select one.	
○	West
○	North Central
○	South Central
○	North East
○	South East
○	Not Sure

*13. Which of the following describes your role during eCybermisssion?(*Required)	
Select all that apply.	
☐	Research Mentor
☐	Competition Advisor
☐	Teacher
☐	Other, (specify)::

14. How many eCybermission participants did you work with this year?	
	students.

*15. How did you learn about eCybermission? (Check all that apply)(*Required)	
Select all that apply.	
☐	Academy of Applied Science (AAS) website
☐	Army Educational Outreach Program (AEOP) website
☐	AEOP on Facebook, Twitter, Pinterest, or other social media
☐	A STEM conference or STEM education conference
☐	An email or newsletter from school, university, or a professional organization
☐	Past eCybermission participant
☐	A student
☐	A colleague
☐	My supervisor or superior
☐	A eCybermission site host or director
☐	Workplace communications
☐	Someone who works with the Department of Defense (Army, Navy, Air Force)
☐	Other, (specify)::

*16. How many times have YOU PARTICIPATED in any of the following Army Educational Outreach Programs (AEOPs) in any capacity? If you have heard of an AEOP but never participated select "Never." If you have not heard of an AEOP select "Never heard of it."(*Required)
Select one per row.

	Never	*Once*	*Twice*	*Three or more times*	*I've never heard of this program*
*Camp Invention	○	○	○	○	○
*eCYBERMISSION	○	○	○	○	○
*Junior Solar Sprint (JSS)	○	○	○	○	○
*West Point Bridge Design Contest (WPBDC)	○	○	○	○	○
*Junior Science & Humanities Symposium (JSHS)	○	○	○	○	○
*Gains in the Education of Mathematics and Science (GEMS)	○	○	○	○	○
*GEMS Near Peers	○	○	○	○	○
*UNITE	○	○	○	○	○
*Science & Engineering Apprenticeship Program (SEAP)	○	○	○	○	○
*Research & Engineering Apprenticeship Program (REAP)	○	○	○	○	○
*High School Apprenticeship Program (HSAP)	○	○	○	○	○
*College Qualified Leaders (CQL)	○	○	○	○	○
*Undergraduate Research Apprenticeship Program (URAP)	○	○	○	○	○
*Science Mathematics, and Research for Transformation (SMART) College Scholarship	○	○	○	○	○
*National Defense Science & Engineering Graduate (NDSEG) Fellowship	○	○	○	○	○

*17. How SATISFIED were you with the following eCybermission features?(*Required)

Select one per row.

	Did not experience	*Not at all*	*A little*	*Somewhat*	*Very much*
*Application or registration process	○	○	○	○	○
*Communication with National Science Teachers Association (NSTA)	○	○	○	○	○
*Submission process	○	○	○	○	○
*Value of Cyber Guide live chat	○	○	○	○	○
*The variety of STEM mission folder challenges available	○	○	○	○	○
*Value of Cyber Guides feedback	○	○	○	○	○
*Value of Cyber Guides forum	○	○	○	○	○
*eCybermission website	○	○	○	○	○
*Educational materials	○	○	○	○	○
*Mission control (phone) response time	○	○	○	○	○
*Mission control (email) response time	○	○	○	○	○

*18. The list below describes mentoring strategies that are effective ways to establish the relevance of learning activities for students. From the list below, please indicate which strategies you used when working with your student(s) in eCybermission.(*Required)

Select one per row.

	Yes - I used this strategy	*No - I did not use this strategy*
*Become familiar with my student(s) background and interests at the beginning of the JSHS experience	○	○
*Giving students real-life problems to investigate or solve	○	○
*Selecting readings or activities that relate to students' backgrounds	○	○
*Encouraging students to suggest new readings, activities, or projects	○	○
*Helping students become aware of the role(s) that STEM plays in their everyday lives	○	○
*Helping students understand how STEM can help them improve their own community	○	○
*Asking students to relate real-life events or activities to topics covered in eCybermission	○	○

*19. The list below describes mentoring strategies that are effective ways to support the diverse needs of students as learners. From the list below, please indicate which strategies you used when working with your student(s) in eCybermission.(*Required)

Select one per row.

	Yes - I used this strategy	*No - I did not use this strategy*
*Identify the different learning styles that my student (s) may have at the beginning of the JSHS experience	○	○
*Interact with students and other personnel the same way regardless of their background	○	○
*Use a variety of teaching and/or mentoring activities to meet the needs of all students	○	○
*Integrating ideas from education literature to teach/mentor students from groups underrepresented in STEM	○	○
*Providing extra readings, activities, or learning support for students who lack essential background knowledge or skills	○	○
*Directing students to other individuals or programs for additional support as needed	○	○
*Highlighting under-representation of women and racial and ethnic minority populations in STEM and/or their contributions in STEM	○	○

*20. The list below describes mentoring strategies that are effective ways to support students development of collaboration and interpersonal skills. From the list below, please indicate which strategies you used when working with your student(s) in eCybermission.(*Required)

Select one per row.

	Yes - I used this strategy	*No - I did not use this strategy*
*Having participant(s) tell other people about their backgrounds and interests	○	○
*Having participant(s) explain difficult ideas to others	○	○
*Having participant(s) listen to the ideas of others with an open mind	○	○
*Having participant(s) exchange ideas with others whose backgrounds or viewpoints are different from their own	○	○
*Having participant(s) give and receive constructive feedback with others	○	○

*21. The list below describes mentoring strategies that are effective ways to support students' engagement in "authentic" STEM activities. From the list below, please indicate which strategies you used when working with your student(s) in eCybermission.(*Required)

Select one per row.

	Yes - I used this strategy	*No - I did not use this strategy*
*Teaching (or assigning readings) about specific STEM subject matter	○	○
*Having participant(s) search for and review technical research to support their work	○	○
*Demonstrating laboratory/field techniques, procedures, and tools for my student(s)	○	○
*Supervising participant(s) while they practice STEM research skills	○	○
*Providing participant(s) with constructive feedback to improve their STEM competencies	○	○
*Allowing participant(s) to work independently to improve their self-management abilities	○	○

*22. This list describes mentoring strategies that are effective ways to support students' STEM educational and career pathways. The list also includes items that reflect AEOP priorities. From this list, please indicate which strategies you used when working with your student(s) in eCybermission.(*Required)

Select one per row.

	Yes - I used this strategy	*No - I did not use this strategy*
*Asking participant(s) about their educational and/or career goals	○	○
*Recommending extracurricular programs that align with participants' goals	○	○
*Recommending Army Educational Outreach Programs that align with participants' goals	○	○
*Providing guidance about educational pathways that will prepare participant(s) for a STEM career	○	○
*Discussing STEM career opportunities within the DoD or other government agencies	○	○
*Discussing STEM career opportunities in private industry or academia	○	○
*Discussing the economic, political, ethical, and/or social context of a STEM career	○	○
*Recommending student and professional organizations in STEM to my student(s)	○	○
*Helping participant(s) build a professional network in a STEM field	○	○
*Helping participant(s) with their resume, application, personal statement, and/or interview preparations	○	○

*23. How useful were each of the following in your efforts to expose student(s) to Army Educational Outreach Programs (AEOPs) during eCybermission?(*Required)

Select one per row.

	Did not experience	*Not at all*	*A little*	*Somewhat*	*Very much*
*eCybermission website	○	○	○	○	○
*Army Educational Outreach Program (AEOP) website	○	○	○	○	○
*AEOP on Facebook, Twitter, Pinterest or other social media	○	○	○	○	○
*AEOP brochure	○	○	○	○	○
*It Starts Here! Magazine	○	○	○	○	○
*eCybermission Program administrator or site coordinator	○	○	○	○	○
*Invited speakers or “career” events	○	○	○	○	○
*Participation in eCybermission	○	○	○	○	○

*24. How USEFUL were each of the following in your efforts to expose your student(s) to Department of Defense (DoD) STEM careers during eCybermission.(*Required)

Select one per row.

	Did not experience	*Not at all*	*A little*	*Somewhat*	*Very much*
*eCybermission website	○	○	○	○	○
*Army Educational Outreach Program (AEOP) website	○	○	○	○	○
*AEOP on Facebook, Twitter, Pinterest or other social media	○	○	○	○	○
*AEOP brochure	○	○	○	○	○
*It Starts Here! Magazine	○	○	○	○	○
*eCybermission Program administrator or site coordinator	○	○	○	○	○
*Invited speakers or "career" events	○	○	○	○	○
*Participation in eCybermission	○	○	○	○	○

*25. Which of the following AEOPs did YOU EXPLICITLY DISCUSS with your student(s) during eCybermission? (check ALL that apply)(*Required)

Select one per row.

	Yes - I discussed this program with my student(s)	*No - I did not discuss this program with my student(s)*
*UNITE	○	○
*Junior Science & Humanities Symposium (JSHS)	○	○
*Science & Engineering Apprenticeship Program (SEAP)	○	○
*Research & Engineering Apprenticeship Program (REAP)	○	○
*High School Apprenticeship Program (HSAP)	○	○
*College Qualified Leaders (CQL)	○	○
*GEMS Near Peer Mentor Program	○	○
*Undergraduate Research Apprenticeship Program (URAP)	○	○
*Science Mathematics, and Research for Transformation (SMART) College Scholarship	○	○
*National Defense Science & Engineering Graduate (NDSEG) Fellowship	○	○
*I discussed AEOP with participant(s) but did not discuss any specific program	○	○
*eCybermission	○	○

*26. How much do you agree or disagree with the following statements about Department of Defense (DoD) researchers and research:(*Required)

Select one per row.

	Strongly Disagree	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
*DoD researchers advance science and engineering fields	○	○	○	○	○
*DoD researchers develop new, cutting edge technologies	○	○	○	○	○
*DoD researchers solve real-world problems	○	○	○	○	○
*DoD research is valuable to society	○	○	○	○	○

*27. How often did YOUR STUDENT(S) have opportunities to do each of the following in eCybermission?(*Required)

Select one per row.

	Not at all	*At least once*	*A few times*	*Most days*	*Every day*
*Work with a STEM researcher or company on a real world STEM research project	○	○	○	○	○
*WOrk with a STEM researcher on a research project topic assigned by the teacher	○	○	○	○	○
*Design their own investigation based on their own question(s)	○	○	○	○	○
*Present their STEM research to a panel of judges from industry or the military	○	○	○	○	○
*Interact with STEM researchers	○	○	○	○	○
*Use laboratory or field techniques, procedures, and tools	○	○	○	○	○
*Design and carry out an investigation	○	○	○	○	○
*Analyze data or information and draw conclusions	○	○	○	○	○
*Work collaboratively as part of a team	○	○	○	○	○
*Build or make a computer model	○	○	○	○	○
*Solve real world problems	○	○	○	○	○

*28. AS A RESULT OF THEIR eCybermission EXPERIENCE, how much did your student(s) GAIN in the following areas?(*Required)

Select one per row.

	No gain	*Small gain*	*Medium gain*	*Large gain*
*In depth knowledge of a STEM topic(s)	○	○	○	○
*Knowledge of research conducted in a STEM topic or field	○	○	○	○
*Knowledge of research processes, ethics, and rules for conduct in STEM	○	○	○	○
*Knowledge of how professionals work on real problems in STEM	○	○	○	○
*Knowledge of what everyday research work is like in STEM	○	○	○	○

*29. Which category best describes the focus of your student(s) eCybermission activities?(*Required)

Select one.

○	Scientific inquiry
○	Engineering design

*30. AS A RESULT OF THEIR eCybermission EXPERIENCE, how much did your student(s) GAIN in their abilities to do each of the following?(*Required)

Select one per row.

	No gain	*Small gain*	*Medium gain*	*Large gain*
*Asking a question that can be answered with one or more scientific experiments	○	○	○	○
*Using knowledge and creativity to suggest a testable explanation (hypothesis) for an observation	○	○	○	○
*Using knowledge and creativity to suggest a solution to a problem	○	○	○	○
*Making a model of an object or system showing its parts and how they work	○	○	○	○
*Designing procedures for an experiment that are appropriate for the question to be answered	○	○	○	○
*Identifying the limitations of the methods and tools used for data collection	○	○	○	○
*Carrying out procedures for an experiment and recording data accurately	○	○	○	○
*Using computer models of objects or systems to test cause and effect relationships	○	○	○	○
*Organizing data in charts or graphs to find patterns and relationships	○	○	○	○
*Considering different interpretations of data when deciding if a solution to a problem works as intended	○	○	○	○
*Considering different interpretations of data when deciding how the data answer a question	○	○	○	○
*Supporting an explanation for an observation with data from experiments	○	○	○	○
*Supporting an explanation with relevant scientific, mathematical, and/or engineering knowledge	○	○	○	○
*Supporting a solution for a problem with data	○	○	○	○
*Identifying the strengths and limitations of explanations in terms of how well they describe or predict observations	○	○	○	○

*Defending an argument that conveys how an explanation best describes an observation	○	○	○	○
*Identifying the strengths and limitations of data, interpretations, or arguments presented in technical or scientific texts	○	○	○	○
*Integrating information from technical or scientific texts and other media to support your explanation of an observation	○	○	○	○
*Communicating about your experiments and explanations in different ways (through talking, writing, graphics, or mathematics)	○	○	○	○
*Integrating information from technical or scientific texts and other media to support your solution to a problem	○	○	○	○

*31. AS A RESULT OF THE eCybermission EXPERIENCE, how much did your student(s) GAIN (on average) in the skills/abilities listed below?(*Required)
Select one per row.

	No gain	*Small gain*	*Medium gain*	*Large gain*
*Learning to work independently	○	○	○	○
*Setting goals and reflecting on performance	○	○	○	○
*Sticking with a task until it is finished	○	○	○	○
*Making changes when things do not go as planned	○	○	○	○
*Including others' perspectives when making decisions	○	○	○	○
*Communicating effectively with others	○	○	○	○
*Confidence with new ideas or procedures in a STEM project	○	○	○	○
*Patience for the slow pace of research	○	○	○	○
*Desire to build relationships with professionals in a field	○	○	○	○
*Connecting a topic or field with their personal values	○	○	○	○

*32. Which of the following statements describe YOUR STUDENT(S) after participating in the eCybermission program?(*Required)
Select one per row.

	Disagree - This did not happen	*Disagree - This happened but not because of eCM*	*Agree - eCM contributed*	*Agree - eCM was primary reason*
*More confident in STEM knowledge, skills, and abilities	○	○	○	○
*More interested in participating in STEM activities outside of school requirements	○	○	○	○
*More aware of other AEOPs	○	○	○	○
*More interested in participating in other AEOPs	○	○	○	○
*More interested in taking STEM classes in school	○	○	○	○
*More interested in earning a STEM degree	○	○	○	○
*More interested in pursuing a career in STEM	○	○	○	○
*More aware of DoD STEM research and careers	○	○	○	○
*Greater appreciation of DoD STEM research	○	○	○	○
*More interested in pursuing a STEM career with the DoD	○	○	○	○

33. What are the three most important strengths of eCybermission?	
Strength #1:	
Strength #2:	
Strength #3:	

34. What are the three ways eCybermission should be improved for future participants?	
Improvement #1:	
Improvement #2:	
Improvement #3:	

35. Please tell us about your overall satisfaction with your eCybermission experience.

8 | Appendix F – NSTA's Response to FY17 Evaluation