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Army Educational Outreach Program

College Qualified Leaders (CQL)



2017 Annual Program Evaluation Report

PART 3: Appendices



February 2018



1 | AEOP Consortium Contacts

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3 | Appendix A – FY17 CQL Evaluation Plan

Questionnaires

As per the approved FY17 AEOP APP, the external evaluation of CQL includes two post-program questionnaires:

- 1. AEOP Youth Questionnaire to be completed by students (apprentices); and
- 2. AEOP Mentor Questionnaire to be completed by Army S&Es and/or other laboratory personnel that supervise, guide, or support apprentices during their CQL research activities.

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 are 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 Youth and Mentor questionnaires provided for their program. Both the Youth and Mentor questionnaires have two versions, an "advanced" version (JSHS and apprenticeship programs) or a "basic" version (all other programs). The same basic set of items is used in both, with slightly modified items and/or additional items used in the advanced version. Additionally, the surveys are customized to gather information specific structures, resources, and activities of programs.

Focus Group Interviews/Site Visits

As per the approved FY17 AEOP APP, the external evaluation of CQL includes site visits/onsite focus groups.

Site visits provide the evaluation team with first-hand opportunities to speak with students and their mentors. 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, the evaluation 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 CQL Site Visits

- One or two 45-minute focus group with 6-8 apprentice participants;
- One 45-minute focus group with 6-8 mentors;
- 30-60 minutes to observe the program (specifically, to see students engaged in program activities, preferably with their mentors); 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.

Per the FY16 Army Education Outreach Program (AEOP) Annual Program Plan (APP), Purdue University will conduct an evaluation study of URAP that includes telephone interviews with URAP mentors and apprentices.

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 SEAP program. 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.



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4 | Appendix B – Apprentice 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 CQL. 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 CQL this year?

- How did you hear about CQL?
- Who did you hear about it from?

The Army Educational Outreach Program (AEOP) is a primary sponsor of CQL. 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 CQL is teaching students about STEM career opportunities in the Army and Department of Defense.
 - o During CQL, 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 CQL. You are definitely eligible to participate in some of these programs and we need to know if you learned about them during CQL
 - During CQL, did you learn about any of the outreach programs that the AEOP sponsors? (SMART, NDSEG, URAP, 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 CQL this year.
 - What, specifically do you think you got out of participating in CQL?
 - How do your experiences in CQL compare to your school experiences in STEM?
 - What would you say was the biggest benefit you gained from participating in CQL?
- 5. Do you have any suggestions for improving CQL 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 – Mentor 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 CQL. 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 CQL, what kind of value does this program add?
 - How do you think students benefit from participating in CQL?
 - Can you think of a particular student or group of students that benefit the most from CQL?
 - How have you benefited from participating in CQL?

One of the primary sponsors of the CQL 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 CQL is helping students know more about STEM career opportunities in the Department of Defense, especially civilian positions.
 - Have you seen any efforts by CQL to educate participants about the Army, DoD, or careers in the DoD?
 - What strategies seem to be the most effective for CQL students?
 - Do you have any suggestions for helping CQL 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 CQL 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 CQL 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 CQL to help engage underserved or underrepresented groups of adults and youth?
 - What strategies seem to work the best? The worst?
 - o Any suggestions for helping CQL reach new populations of adult and youth participants?
- 5. What suggestions do you have for improving CQL?
- 6. Last Chance Have we missed anything? Tell us anything you want us to know that we didn't ask about.





6 | Appendix D – Apprentice 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)				
Sele	ect one.			
0	Yes, I agree to participate in this survey	(Go to question number 2.)		
0	No, I do not wish to participate in this survey	Go to end of chapter		

*4. What	*4. What is your current grade level in school? (select one)(*Required)					
Select one	Select one.					
0	College freshman					
0	College sophomore					
0	College junior					
0	College senior					
0	Choose not to report					
0	Other, (specify)::					



*6. How often did you do each of the following in STEM classes at school over the past year?(*Required)

	Not at all	At least once	Monthly	Weekly	Every day
*Work with a STEM researcher or company on a real world STEM research project	0	0	0	0	0
*Work with a STEM researcher on a research project of your own choosing	0	0	0	0	0
*Design my own research or investigation based on my own question(s)	0	0	0	0	0
*Present my STEM reearch to a panel of judges from industry or the military	0	0	0	0	0
*Interact with STEM researchers	0	0	0	0	0
*Use laboratory procedures and tools	0	0	0	0	0
*Identify questions or problems to investigate	0	0	0	0	0
*Design and carry out an investigation	0	0	0	0	0
*Analyze data or information and draw conclusions	0	0	0	0	0
*Work collaboratively as part of a team	0	0	0	0	0
*Build or make a computer model	0	0	0	0	0
*Solve real world problems	0	0	0	0	0



*7. How often did you do each of the following in your Apprenticeship program this year?(*Required)

	Not at all	At least once	Monthly	Weekly	Every day
*Work with a STEM researcher or company on a real world STEM research project	0	0	0	0	0
*Work with a STEM researcher on a research project of your own choosing	0	0	0	0	0
*Design my own research or investigation based on my own question(s)	0	0	0	0	0
*Present my STEM reearch to a panel of judges from industry or the military	0	0	0	0	0
*Interact with STEM researchers	0	0	0	0	0
*Use laboratory procedures and tools	0	0	0	0	0
*Identify questions or problems to investigate	0	0	0	0	0
*Design and carry out an investigation	0	0	0	0	0
*Analyze data or information and draw conclusions	0	0	0	0	0
*Work collaboratively as part of a team	0	0	0	0	0
*Build or make a computer model	0	0	0	0	0
*Solve real world problems	0	0	0	0	0



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

	Did not experience	Not at all	A little	Somewhat	Very much
*Army Educational Outreach Program (AEOP) website	0	0	0	0	0
*AEOP on Facebook, Twitter or other social media	0	0	0	0	0
*AEOP brochure	0	0	0	0	0
*My Apprenticeship Mentor	0	0	0	0	0
*Presentations or information shared through the Apprenticeship Program	0	0	0	0	0
*Participation in the Apprenticeship Program	0	0	0	0	0



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

	Did not experience	Not at all	A little	Somewhat	Very much
*Army Educational Outreach Program (AEOP) website	0	0	0	0	0
*AEOP on Facebook, Twitter or other social media	0	0	0	0	0
*Army Research Office (ARO) website	0	0	0	0	0
*AEOP brochure	0	0	0	0	0
*My Apprenticeship Program mentor	0	0	0	0	0
*Presentations or information shared in the Apprenticeship Program	0	0	0	0	0
*Participation in the Apprenticeship Program	0	0	0	0	0



*10. How SATISFIED were you with the following Apprenticeship Program features?(*Required)

Select one per row.					
	Did not experience	Not at all	A little	Somewhat	Very much
*Applying or registering for the program	0	0	0	0	0
*Other administrative tasks (e.g. security clearances, issuing CAC cards)	0	0	0	0	0
*Communicating with your host site organizers	0	0	0	0	0
*The physical location(s) of Apprenticeship Program activities	0	0	0	0	0
*The variety of STEM topics available to you in the Apprenticeship Program	0	0	0	0	0
*Teaching or mentoring provided during Apprenticeship Program activities	0	0	0	0	0
*Amount of stipend (payment)	0	0	0	0	0
Timeliness of receiving stipend (payment)	0	0	0	0	0
*Research abstract preparation requirements	0	0	0	0	0



*11. How much input did you have in selecting your Apprenticeship Program research project?(*Required)

Sele	ect one.
0	I did not have a project
0	I was assigned a project by my mentor
0	I worked with my mentor to design a project
0	I had a choice among various projects suggested by my mentor
0	I worked with my mentor and members of a research team to design a project
0	I designed the entire project on my own

*12	*12. How often was your mentor available to you during the Apprenticeship Program?(*Required)					
Sele	Select one.					
0	I did not have a mentor					
0	The mentor was never available					
0	The mentor was available less than half of the time					
0	The mentor was available about half of the time of my project					
0	The mentor was available more than half of the time					
0	The mentor was always available					

*13. To what extent did you work as part of a group or team during the Apprenticeship Program?(*Required)

Sel	lect one.
0	I worked alone (or alone with my research mentor)
0	I worked with others in a shared laboratory or other space, but we worked on different projects
0	I worked alone on my project and I met with others regularly for general reporting or discussion
0	I worked alone on a project that was closely connected with projects of others in my group
0	I worked with a group who all worked on the same project



*14. How SATISFIED were you with each of the following:(*Required)

Select one per row.					
	Did not experience	Not at all	A little	Somewhat	Very much
*My working relationship with my mentor	0	0	0	0	0
*My working relationship with the group or team	0	0	0	0	0
*The amount of time I spent doing meaningful research	0	0	0	0	0
*The amount of time I spent with my research mentor	0	0	0	0	0
*The research experience overall	0	0	0	0	0



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

	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	0	0
*Helped me understand how I can use STEM to improve my community	0	0
*Used a variety of strategies to help me learn	0	0
*Gave me extra support when I needed it	0	0
*Encouraged me to share ideas with others who have different backgrounds or viewpoints than I do	0	0
*Allowed me to work on a team project or activity	0	0
*Helped me learn or practice a variety of STEM skills	0	0
*Gave me feedback to help me improve in STEM	0	0
*Talked to me about the education I need for a STEM career	0	0
*Recommended Army Educational Outreach Programs that match my interests	0	0
*Discussed STEM careers with the DoD or government	0	0



*16. Which of the following statements apply to your research experience in the Apprenticeship Program? (Choose ALL that apply)(*Required)
Select all that apply.
□ I presented a talk or poster to other students or faculty
I presented a talk or poster at a professional symposium or conference
□ I attended a symposium or conference
□ I wrote or co-wrote a paper that was/will be published in a research journal
□ I wrote or co-wrote a technical paper or patent
□ I will present a talk or poster to other students or faculty
□ I will present a talk or poster at a professional symposium or conference
□ I will attend a symposium or conference
□ I will write or co-write a paper that was/will be published in a research journal
I will write or co-write a technical paper or patent
I won an award or scholarship based on my research



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

Select one per row.				
	No gain	A little gain	Some gain	Large gain
*In depth knowledge of a STEM topic(s)	0	0	0	0
*Knowledge of research conducted in a STEM topic or field	0	0	0	0
*Knowledge of research processes, ethics, and rules for conduct in STEM	0	0	0	0
*Knowledge of how scientists and engineers work on real problems in STEM	0	0	0	0
*Knowledge of what everyday research work is like in STEM	0	0	0	0

*1	8. Which ca	ategory best describes the focus of your apprenticeship activities?(*Required)
Sei	lect one.	
	0	Science
	0	Technology
	0	Engineering
	0	Mathematics



*19. As a result of your apprenticeship experience, how much did you GAIN in your ability to do each of the following?(*Required)

Select one per row.

If answered, go to question number 21.

	No gain	A little gain	Some gain	Large gain
*Asking a question that can be answered with one or more scientific experiments	0	0	0	0
*Using knowledge and creativity to suggest a testable explanation (hypothesis) for an observation	0	0	0	0
*Considering different interpretations of data when deciding how the data answer a question	0	0	0	0
*Supporting an explanation for an observation with data from experiments	0	0	0	0
*Supporting an explanation with relevant scientific, mathematical, and/or engineering knowledge	0	0	0	0
*Identifying the strengths and limitations of explanations in terms of how well they describe or predict observations	0	0	0	0
*Defending an argument that conveys how an explanation best describes an observation	0	0	0	0
*Identifying the strengths and limitations of data, interpretations, or arguments presented in technical or scientific texts	0	0	0	0
*Integrating information from technical or scientific texts and other media to support your explanation of an observation	0	0	0	0
*Communicating about your experiments and explanations in different ways (through talking, writing, graphics, or mathematics)	0	0	0	0



*20. As a result of your apprenticeship experience, how much did you GAIN in your ability to do each of the following?(*Required)



	No gain	A little gain	Some gain	Large gain
*Defining a problem that can be solved by developing a new or improved object, process, or system	0	0	0	0
*Using knowledge and creativity to propose a testable solution for a problem	0	0	0	0
*Making a model of an object or system to show its parts and how they work	0	0	0	0
*Designing procedures for an experiment that are appropriate for the question to be answered	0	0	0	0
*Identifying the limitations of the methods and tools used for data collection	0	0	0	0
*Carrying out procedures for an experiment and recording data accurately	0	0	0	0
*Using computer models of an object or system to investigate cause and effect relationships	0	0	0	0
*Considering different interpretations of the data when deciding if a solution works as intended	0	0	0	0
*Organizing data in charts or graphs to find patterns and relationships	0	0	0	0
*Supporting a solution for a problem with data from experiments	0	0	0	0
*Supporting a solution with relevant scientific, mathematical, and/or engineering knowledge	0	0	0	0
*Identifying the strengths and limitations of solutions in terms of how well they meet design criteria	0	0	0	0
*Defend an argument that conveys how a solution best meets design criteria	0	0	0	0
*Integrating information from technical or scientific texts and other media to support your solution to a problem	0	0	0	0



*Communicating information about your design experiments and solutions in different ways (through talking, writing, graphics, or math equations)	0	0	0	0	
--	---	---	---	---	--



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

Select one per row.				
	No gain	A little gain	Some gain	Large gain
*Learning to work independently	0	0	0	0
*Setting goals and reflecting on performance	0	0	0	0
*Sticking with a task until it is finished	0	0	0	0
*Making changes when things do not go as planned	0	0	0	0
*Working well with people from all backgrounds	0	0	0	0
*Including others' perspectives when making decisions	0	0	0	0
*Communicating effectively with others	0	0	0	0
*Viewing failure as an opportunity to learn	0	0	0	0



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

Select one per row.				
	No gain	A little gain	Some gain	Large gain
*Interest in a new STEM topic	0	0	0	0
*Deciding on a path to pursue a STEM career	0	0	0	0
*Sense of accomplishing something in STEM	0	0	0	0
*Feeling prepared for more challenging STEM activities	0	0	0	0
*Confidence to try out new ideas or procedures on my own in a STEM project	0	0	0	0
*Patience for the slow pace of STEM research	0	0	0	0
*Desire to build relationships with mentors who work in STEM	0	0	0	0
*Connecting a STEM topic or field to my personal values	0	0	0	0



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



*24. After you have participated in your Apprenticeship Program, how far do you want to go in school?(*Required)

Sel	ect one.
0	Go to a trade or vocational school
0	Go to college for a little while
0	Finish college (get a Bachelor's degree)
0	Get more education after college
0	Get a master's degree
0	Get a Ph.D.
0	Get a medical-related degree (M.D.), veterinary degree (D.V.M), or dental degree (D.D.S)
0	Get a combined M.D. / Ph.D.
0	Get another professional degree (law, business, etc.)



*25. How interested are you in participating in the following programs in the future?(*Required)

	I've never heard of this program	Not at all	A little	Somewhat	Very much
*College Qualified Leaders (CQL)	0	0	0	0	0
*Undergraduate Research Apprenticeship Program (URAP)	0	0	0	0	0
*Science Mathematics, and Research for Transformation (SMART) College Scholarship	0	0	0	0	0
*National Defense Science & Engineering Graduate (NDSEG) Fellowship	0	0	0	0	0
*GEMS Near Peer Mentor Program	0	0	0	0	0

*26. How many jobs/careers in STEM did you learn about in your Apprenticeship Program?(*Required)					
Select one.	Select one.				
0	None				
0	1				
0	2				
0	3				
0	4				
0	5 or more				



*27. How many Army or Department of Defense (DoD) STEM jobs/careers did you learn about in your Apprenticeship Program?(*Required)

Select one.				
0	None			
0	1			
0	2			
0	3			
0	4			
0	5 or more			



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

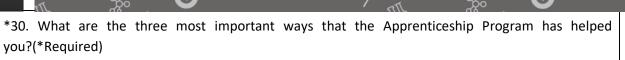
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
*DoD researchers advance science and engineering fields	0	0	0	0	0
*DoD researchers develop new, cutting edge technologies	0	0	0	0	0
*DoD researchers solve real- world problems	0	0	0	0	0
*DoD research is valuable to society	0	0	0	0	0



*29. Which of the following statements describe you after participating in the Apprenticeship Program?(*Required)

·					
	Disagree - This did not happen	Disagree - This happened but not because of CQL	Agree - CQL contributed	Agree - CQL was primary reason	
*I am more confident in my STEM knowledge, skills, and abilities	0	0	0	0	
*I am more interested in participating in STEM activities outside of school requirements	0	0	0	0	
*I am more aware of other AEOPs	0	0	0	0	
*I am more interested in participating in other AEOPs	0	0	0	0	
*I am more interested in taking STEM classes in school	0	0	0	0	
*I am more interested in earning a STEM degree	0	0	0	0	
*I am more interested in pursuing a career in STEM	0	0	0	0	
*I am more aware of Army or DoD STEM research and careers	0	0	0	0	
*I have a greater appreciation of Army or DoD STEM research	0	0	0	0	
*I am more interested in pursuing a STEM career with the Army or DoD	0	0	0	0	





*Benefit #1:	
*Benefit #2:	
*Benefit #3:	

*31. What are the three ways that the Apprenticeship Program should be improved for future participants?(*Required)

*Improvement #1:
*Improvement #2:
*Improvement #3:

*32. Please tell us about your overall satisfaction with your Apprenticeship Program experience.(*Required)



7 | Appendix E – Mentor Questionnaire



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

*1.1	*1. Do you agree to participate in this survey? (required)(*Required)		
Selec	Select one.		
0	Yes, I agree to participate in this survey		
0	No, I do not wish to participate in this survey		



2. Please provide your email address: (optional)

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

*4. W	*4. What is your race or ethnicity?(*Required)				
Select	Select one.				
0	Hispanic or Latino				
0	Asian				
0	Black or African American				
0	Native American or Alaska Native				
0	Native Hawaiian or Other Pacific Islander				
0	White				
0	Choose not to report				
0	Other race or ethnicity, (specify)::				



*5. \	*5. Which of the following BEST describes the organization you work for? (select ONE)(*Required)				
Selec	Select one.				
0	No organization				
0	Private Industry				
0	Department of Defense or other government agency				
0	Non-profit				
0	Other, (specify):				

*6	*6. Which of the following BEST describes your current occupation (select ONE)(*Required)					
Sel	Select one.					
0	Teacher					
O Other school staff						
0	University educator	(Go numb	to er 7.)	question		
0	Scientist, Engineer, or Mathematician in training (undergraduate or graduate student, etc.)	(Go numb	to er 7.)	question		
0	Scientist, Engineer, or Mathematics professional	(Go numb	to er 7.)	question		
0	Other, (specify)::	(Go numb	to er 7.)	question		



*7.	*7. Which of the following best describes your primary area of research?(*Required)					
Sele	Select one.					
0	Physical science (physics, chemistry, astronomy, materials science, etc.)					
0	Biological science					
0	Earth, atmospheric, or oceanic science					
0	Environmental science					
0	Computer science					
0	Technology					
0	Engineering					
0	Mathematics or statistics					
0	Medical, health, or behavioral science					
0	Social Science (psychology, sociology, anthropology)					
0	Other, (specify)::					



*8	*8. At which of the following CQL sites did you participate? (Select ONE)(*Required)						
Sel	Select one.						
0	ALABAMA – U.S. Army Aviation & Missile Research, Development & Engineering Center (AMRDEC) - Redstone, AL						
0	GEORGIA – U.S. Army Criminal Investigation Command - Defense Forensic Science Center (DFSC) – Forest Park, GA						
0	ILLINOIS – U.S. Army Engineer Research & Development Center – Construction Engineering Research Laboratory (ERDC-CERL) - Champaign, IL						
0	MARYLAND – U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) – Aberdeen Proving Ground/Edgewood, MD						
0	MARYLAND – U.S. Army Center for Environmental Health Research (USACEHR) – Fort Detrick, MD						
0	MARYLAND – U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) – Fort Detrick, MD						
0	MARYLAND – U.S. Army Medical Research and Materiel Command – Walter Reed Army Institute of Research (WRAIR) – Silver Spring, MD						
0	MARYLAND – U.S. Army Research Laboratory (ARL) – Aberdeen Proving Ground, MD						
0	MARYLAND – U.S. Army Research Laboratory (ARL) – Adelphi, MD						
0	MISSISSIPPI – U.S. Army Engineer Research & Development Center (ERDC) – Vicksburg, MS						
0	VIRGINIA – U.S. Army Engineer Research & Development Center - Geospatial Research Laboratory (ERDC-GRL) – Alexandria, VA						

*9. Which of the following BEST describes your role during CQL?(*Required)

Select one.

- O Research Mentor
- O Research Team Member but not a Principal Investigator (PI)
- O Other, (specify)::



*11	*11. How did you learn about CQL? (Check all that apply)(*Required)					
Sele	Select all that apply.					
	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 CQL participant					
	A student					
	A colleague					
	My supervisor or superior					
	A CQL site host or director					
	Workplace communications					
	Someone who works with the Department of Defense (Army, Navy, Air Force)					
	Other, (specify)::					



*12. 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)



	Never	Once	Twice	Three or more times	l've never heard of this program
*Camp Invention	0	0	0	0	0
*eCYBERMISSION	0	0	0	0	0
*Junior Solar Sprint (JSS)	0	0	0	0	0
*West Point Bridge Design Contest (WPBDC)	0	0	0	0	0
*Junior Science & Humanities Symposium (JSHS)	0	0	0	0	0
*Gains in the Education of Mathematics and Science (GEMS)	0	0	0	0	0
*GEMS Near Peers	0	0	0	0	0
*UNITE	0	0	0	0	0
*Science & Engineering Apprenticeship Program (SEAP)	0	0	0	0	0
*Research & Engineering Apprenticeship Program (REAP)	0	0	0	0	0
*High School Apprenticeship Program (HSAP)	0	0	0	0	0
*College Qualified Leaders (CQL)	0	0	0	0	0
*Undergraduate Research Apprenticeship Program (URAP)	0	0	0	0	0
*Science Mathematics, and Research for Transformation (SMART) College Scholarship	0	0	0	0	0
*National Defense Science & Engineering Graduate (NDSEG) Fellowship	0	0	0	0	0



*13. Which of the following were used for the purpose of recruiting your student(s) for apprenticeships? (select ALL that apply)(*Required)					
Select all that apply.					
Applications from Academy of Applied Science (AAS) or the AEOP					
Personal acquaintance(s) (friend, family, neighbor, etc.)					
Colleague(s) in my workplace					
K-12 school teacher(s) outside of my workplace					
University faculty outside of my workplace					
□ Informational materials sent to K-12 schools or Universities outside of my workplace					
Communication(s) generated by a K-12 school or teacher (newsletter, email blast, website)					
Communication(s) generated by a university or faculty (newsletter, email blast, website)					
□ STEM or STEM Education conference(s) or event(s)					
Organization(s) that serve underserved or underrepresented populations					
□ The student contacted me (the mentor) about the program					
□ I do not know how student(s) were recruited for CQL					
Other, (specify)::					



*14. How SATISFIED were you with the following CQL features? (*Required)

	Did not experience	Not at all	A little	Somewhat	Very much
*Application or registration process	0	0	0	0	0
*Other administrative tasks (in- processing, network access, etc.)	0	0	0	0	0
*Communicating with Academy of Applied Science (AAS)	0	0	0	0	0
*Communicating with CQL organizers	0	0	0	0	0
*Support for instruction or mentorship during program activities	0	0	0	0	0
*Amount of Stipends (payment)	0	0	0	0	0
*Timeliness of stipend payment	0	0	0	0	0
*Research abstract preparation requirements	0	0	0	0	0
*Research presentation process	0	0	0	0	0



*15. 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 CQL.(*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 CQL experience	0	0		
*Giving students real-life problems to investigate or solve	0	0		
*Selecting readings or activities that relate to students' backgrounds	0	0		
*Encouraging students to suggest new readings, activities, or projects	0	0		
*Helping students become aware of the role(s) that STEM plays in their everyday lives	0	0		
*Helping students understand how STEM can help them improve their own community	0	0		
*Asking students to relate real-life events or activities to topics covered in CQL	0	0		



*16. 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 CQL.(*Required)

	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 CQL experience	0	0
*Interact with students and other personnel the same way regardless of their background	0	0
*Use a variety of teaching and/or mentoring activities to meet the needs of all students	0	0
*Integrating ideas from education literature to teach/mentor students from groups underrepresented in STEM	0	0
*Providing extra readings, activities, or learning support for students who lack essential background knowledge or skills	0	0
*Directing students to other individuals or programs for additional support as needed	0	0
*Highlighting under-representation of women and racial and ethnic minority populations in STEM and/or their contributions in STEM	0	0



*17. 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 CQL.(*Required)

	Yes - I used this strategy		
*Having my student(s) tell other people about their backgrounds and interests	0	0	
*Having my student(s) explain difficult ideas to others	0	0	
*Having my student(s) listen to the ideas of others with an open mind	0	0	
*Having my student(s) exchange ideas with others whose backgrounds or viewpoints are different from their own	0	0	
*Having my student(s) give and receive constructive feedback with others	0	0	
*Having students work on collaborative activities or projects as a member of a team	0	0	
*Allowing my student(s) to resolve conflicts and reach agreement within their team	0	0	



*18. 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 CQL.(*Required)

		No - I did not use
	Yes - I used this strategy	
*Teaching (or assigning readings) about specific STEM subject matter	0	0
*Having my student(s) search for and review technical research to support their work	0	0
*Demonstrating laboratory/field techniques, procedures, and tools for my student(s)	0	0
*Supervising my student(s) while they practice STEM research skills	0	0
*Providing my student(s) with constructive feedback to improve their STEM competencies	0	0
*Allowing students to work independently to improve their self-management abilities	0	0
*Encouraging students to learn collaboratively (team projects, team meetings, journal clubs, etc.)	0	0
*Encouraging students to seek support from other team members	0	0



*19. 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 and Army priorities. From this list, please indicate which strategies you used when working with your student(s) in CQL.(*Required)

	Yes - I used this strategy	No - I did not use this strategy
*Asking my student(s) about their educational and/or career goals	0	0
*Recommending extracurricular programs that align with students' goals	0	0
*Recommending Army Educational Outreach Programs that align with students' goals	0	0
*Providing guidance about educational pathways that will prepare my student(s) for a STEM career	0	0
*Discussing STEM career opportunities within the DoD or other government agencies	0	0
*Discussing STEM career opportunities in private industry or academia	0	0
*Discussing the economic, political, ethical, and/or social context of a STEM career	0	0
*Recommending student and professional organizations in STEM to my student(s)	0	0
*Helping students build a professional network in a STEM field	0	0
*Helping my student(s) with their resume, application, personal statement, and/or interview preparations	0	0



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

Select one per row.						
	Did not experience	Not at all	A little	Somewhat	Very much	
*Army Educational Outreach Program (AEOP) website	0	0	0	0	0	
*AEOP on Facebook, Twitter, Pinterest or other social media	0	0	0	0	0	
*AEOP brochure	0	0	0	0	0	
*CQL Program administrator or site coordinator	0	0	0	0	0	
*Invited speakers or "career" events	0	0	0	0	0	
Participation in CQL	0	0	0	0	0	



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

Select one per row.					
	Did not experience	Not at all	A little	Somewhat	Very much
*Army Educational Outreach Program (AEOP) website	0	0	0	0	0
*AEOP on Facebook, Twitter, Pinterest or other social media	0	0	0	0	0
*AEOP brochure	0	0	0	0	0
*It Starts Here! Magazine	0	0	0	0	0
*CQL Program administrator or site coordinator	0	0	0	0	0
*Invited speakers or "career" events	0	0	0	0	0
*Participation in CQL	0	0	0	0	0



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

	Yes - I discussed this program with my student(s)	No - I did not discuss this program with my student(s)
*College Qualified Leaders (CQL)	0	0
	<u> </u>	
*GEMS Near Peer Mentor Program	0	0
*Undergraduate Research Apprenticeship Program (URAP)	0	0
*Science Mathematics, and Research for Transformation (SMART) College Scholarship	0	0
*National Defense Science & Engineering Graduate (NDSEG) Fellowship	0	0
*I discussed AEOP with my student(s) but did not discuss any specific program	0	0



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



*24. How often did YOUR STUDENT(S) have opportunities to do each of the following in CQL?(*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	0	0	0	0	0
*Work with a STEM researcher on a research project of their own choosing	0	0	0	0	0
*Design their own research or investigation based on their own question(s)	0	0	0	0	0
*Present their STEM research to a panel of judges from industry or the military	0	0	0	0	0
*Interact with STEM researchers	0	0	0	0	0
*Use laboratory procedures and tools	0	0	0	0	0
*Identify questions or problems to investigate	0	0	0	0	0
*Design and carry out an investigation	0	0	0	0	0
*Analyze data or information and draw concusions	0	0	0	0	0
*Work collaboratively as part of a team	0	0	0	0	0
*Build or make a computer model	0	0	0	0	0
*Solve real world problems	0	0	0	0	0



*25. AS A RESULT OF THEIR CQL 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)	0	0	0	0
*Knowledge of research conducted in a STEM topic or field	0	0	0	0
*Knowledge of research processes, ethics, and rules for conduct in STEM	0	0	0	0
*Knowledge of how professionals work on real problems in STEM	0	0	0	0
*Knowledge of what everyday research work is like in STEM	0	0	0	0

*2	*26. Which category best describes the focus of your student(s) CQL activities?(*Required)					
Sei	Select one.					
	O Science (Go to question number 27.)					
C	O Technology (Go to question number 28.)					
	O Engineering (Go to question number 28.)					
	O Mathematics (Go to question number 28.)					



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

Select one per row.

If answered, go to question number 29.



	No gain	Small gain	Medium gain	Large gain
*Asking a question that can be answered with one or more scientific experiments	0	0	0	0
*Using knowledge and creativity to suggest a testable explanation (hypothesis) for an observation	0	0	0	0
*Making a model of an object or system showing its parts and how they work	0	0	0	0
*Designing procedures for an experiment that are appropriate for the question to be answered	0	0	0	0
*Identifying the limitations of the methods and tools used for data collection	0	0	0	0
*Carrying out procedures for an experiment and recording data accurately	0	0	0	0
*Using computer models of objects or systems to test cause and effect relationships	0	0	0	0
*Organizing data in charts or graphs to find patterns and relationships	0	0	0	0
*Considering different interpretations of data when deciding how the data answer a question	0	0	0	0
*Supporting an explanation for an observation with data from experiments	0	0	0	0
*Supporting an explanation with relevant scientific, mathematical, and/or engineering knowledge	0	0	0	0
*Identifying the strengths and limitations of explanations in terms of how well they describe or predict observations	0	0	0	0
*Defending an argument that conveys how an explanation best describes an observation	0	0	0	0
*Identifying the strengths and limitations of data, interpretations, or arguments presented in technical or scientific texts	0	0	0	0



*Integrating information from technical or scientific texts and other media to support your explanation of an observation	0	0	0	0
*Communicating about your experiments and explanations in different ways (through talking, writing, graphics, or mathematics)		0	0	0



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



	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	0	0	0	0
*Using knowledge and creativity to propose a testable solution for a problem	0	0	0	0
*Making a model of an object or system to show its parts and how they work	0	0	0	0
*Designing procedures for an experiment that are appropriate for the question to be answered	0	0	0	0
*Identifying the limitations of the methods and tools used for data collection	0	0	0	0
*Carrying out procedures for an experiment and recording data accurately	0	0	0	0
*Using computer models of an object or system to investigate cause and effect relationships	0	0	0	0
*Considering different interpretations of the data when deciding if a solution works as intended	0	0	0	0
*Organizing data in charts or graphs to find patterns and relationships	0	0	0	0
*Supporting a solution for a problem with data from experiments	0	0	0	0
*Supporting a solution with relevant scientific, mathematical, and/or engineering knowledge	0	0	0	0
*Identifying the strengths and limitations of solutions in terms of how well they meet design criteria	0	0	0	0
*Defend an argument that conveys how a solution best meets design criteria	0	0	0	0
*Identifying the strengths and limitations of data, interpretations, or arguments presented in technical or scientific texts	0	0	0	0



*Integrating information from technical or scientific texts and other media to support your solution to a problem	0	0	0	0
*Communicating information about your design experiments and solutions in different ways (through talking, writing, graphics, or math equations)	0	0	0	0



*29. AS A RESULT OF THE CQL 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	0	0	0	0
*Setting goals and reflecting on performance	0	0	0	0
*Sticking with a task until it is finished	0	0	0	0
*Making changes when things do not go as planned	0	0	0	0
*Including others' perspectives when making decisions	0	0	0	0
*Communicating effectively with others	0	0	0	0
*Confidence with new ideas or procedures in a STEM project	0	0	0	0
*Patience for the slow pace of research	0	0	0	0
*Desire to build relationships with professionals in a field	0	0	0	0
*Connecting a topic or field with their personal values	0	0	0	0



*30. Which of the following statements describe YOUR STUDENT(S) after participating in the CQL program?(*Required)

	Disagree - This did not happen	Disagree - This happened but not because of CQL	Agree - CQL contributed	Agree - CQL was primary reason
*More confident in STEM knowledge, skills, and abilities	0	0	0	0
*More interested in participating in STEM activities outside of school requirements	0	0	0	0
*More aware of other AEOPs	0	0	0	0
*More interested in participating in other AEOPs	0	0	0	0
*More interested in taking STEM classes in school	0	0	0	0
*More interested in earning a STEM degree	0	0	0	0
*More interested in pursuing a career in STEM	0	0	0	0
*More aware of DoD STEM research and careers	0	0	0	0
*Greater appreciation of DoD STEM research	0	0	0	0
*More interested in pursuing a STEM career with the DoD	0	0	0	0



*31. What are the three most important strengths of CQL?(*Required)

*Strength #1:	
*Strength #2:	
*Strength #3:	

*32. What are the three ways CQL should be improved for future participants?(*R	equired)
*Improvement #1:	
*Improvement #2:	
*Improvement #3:	

33. Please tell us about your overall satisfaction with your CQL experience.	
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8 | AAS Response to FY17 Evaluation Report

