

CNAP: IUP Expansion of CAE-C Education Project

Meeting's Agenda on March 7, 2018

Action:

1. Approval of last meeting's minutes held on February 21, 2018, see attachment #1.

Announcements:

1. Please continue to store all information and/or work on the grant shared folder on X:\ drive.
2. Dr. Porche has agreed to be the guest speaker at the upcoming Cybersecurity Workshop on March 24 to be held at Westmoreland County Community College (WWWC).
3. Coordination with WCCC is underway to take care of all workshop logistics. WCCC will sponsor the lunch for all participants.
4. WF communicated with Krista the new assignments in COSC 454 and COSC 356 that have writing components so that Tutoring be offered based on the assignment requirements.
5. In response to a suggestion by Dr. Rafoth, WF has contacted the Computer Science Department chair who promised to give us about 20 minutes in an upcoming Department meeting (most probably on April 2) to present our findings and resources to the faculty.

Discussions:

1. Discussion and updates of the findings of the Research Study, see Attachment 2.
2. Content and Organization of the Web Portal at www.iup.edu/caecexpansion including Multimedia contents and how to best present/organize them.
3. Contents for the Cybersecurity Community and Research Study on the Web Portal??? Also, need content for the proposed new page for faculty resources.
4. Mid-year grant progress report to the funding agency, NSA, see draft (excluding attachments) in attachment #3.
5. Summer camp and possible collaboration with UBMS.
6. Dr. Fiddner came up with a plan/topics (see attachment #4) to be discussed with the Pittsburgh Technology Council (PTC) in a meeting between us and PTC personnel that will be facilitated by Dan Yuhas, IUP IT manager.

7. Braxton and Sarah, updates regarding MM editing (pictures and videos) and posting on the project Web portal.

Project Components Status Reports:

1. Research Component: Dr. Machado
2. Tutoring/Writing Center: Dr. Rafoth
3. Cybersecurity local consortium: Dr. Fiddner
4. Web Portal, Summer Camp, and Weekend Workshops: Dr. Farag.

New Business:

??

Minutes for the CNAP Committee Meeting

February 21, 2018 at 11:00 AM in 123 HSS

Attended by: Drs. Waleed Farag, Crystal Machado, Ben Rafoth, Alex Ashcom, Sarah Bradshaw, Amber Stewart, Braxton Dameron, and Hunter Sargent.

Excused: Dr. Mac Fiddner

1. The minutes of last meeting were unanimously approved at 11:05 AM.
2. SB is going to place videos and edited pictures on the shared drive to be posted on the project landing page/workshop pages to give an overview of the workshops.
3. WF will request a title name change from the web team to “Cybersecurity Skill Zone”.
4. BR and WF will contact Dr. Andrew Barnette from WCCC and work on finding funds for food at the March 24th workshop.
5. AA and DF will work on completing “Cybersecurity Community” page with visuals and more information.
6. DF will contact Dr. Kevin Sloan of Penn Highlands Community College to see if he would like to collaborate in this project.
7. The group discussed creating Qualitative and Quantitative visuals of the feedback received from the previous workshops for the web page.
8. WF has briefly discussed the outcomes of his meeting with two IUP IT managers that was organized and facilitated by DF on Feb. 8, 2018.

9. The group discussed using Kahoot/Mentimeter during presentations for student feedback and interaction.
10. AS will work on converting the questions from the research study to a Word document so we all have a copy.
11. BR, DF, CM, will turn in their Mid-year grant progress report to WF by the end of the month so he can compile then send in the mid-year report to the NSA.
12. Meeting was adjourned at 12:45 PM.

Submitted by Hunter Sargent and Waleed Farag

Qualitative Tables

PARTICIPANTS

Table 1. Descriptive Characteristics of Interviewees

Descriptive characteristics	f	%
Gender		
Males (majority males)	15	75
Females	4	20
Other	1	5
Age		
25-30 (majority beginning professionals)	8	40
31-35	1	5
36-40	5	25
41-45	2	10
46-50	0	0
51 and above	3	15
Other	1	5
Location (Work) (nice balance here)		
Rural	10	50
Urban	10	50
Years in the Field (nice balance here)		
1-5 years	6	30
6-10 years	3	15
11-15 years	1	5
16 or more	5	25
Not asked	5	25

Table 2. Job Designation of Interviewees

Job Designation of Interviewees	f	%
IT Faculty/Teacher	1	5
IT Tech Support	2	10
Network/System Admin	4	20
IT Trainer/Analyst (majority)	8	40

IT Director/Manager	3	15
Software Engineer/Programmer	2	10
Total	20	100

WRITING SKILLS

KINDS OF WRITING

Table 3. Types of Writing Identified by Interviewees

Kinds of Writing	f	%
Email	19	95
Reports	9	45
Procedures	8	40
Training Modules	6	30
Documentation	5	25
Memos	3	15
Texts/apps	2	10
Pictures	2	10
Policy	2	10
PowerPoints	1	5
Curriculum	1	5
Webpages	1	5
Checklist	1	5
Others		

WRITING CONFIDENCE

Table 4a. Writing Confidence (put the participant numbers in the cell. You may have more than one in each cell.

Writing Confidence		Very Confident	Confident	Average Confidence	Low/No Confidence
Location					
	Rural	Marcus, Jonathon, Roxy	Josiah, Shane, Drew		
	Suburban				
	Urban	Lucas, Joseph	Roger, Rex, Zac, Brian		
	Unclear	Ceaser	Danae, Manny, Raymond, Lisa	Nick, Greg,	
Age in Years					
	25-35	Marcus, Joseph	Shane, Zac, Manny, Brian, Raymond	Nick, Kasey	
	36-45	Lucas, Ceaser	Josiah, Rex, Danae, Lisa	Greg,	
	46-55		Drew		
	56-65	Jonathon, Roxy			
Number of Years as a Professional					
	0-2	Joseph	Zac, Brian,		
	3-5		Shane, Raymond,	Kasey	
	6-8	Lucas,	Rex, Manny,		
	9-11	Marcus,			
	12 or more	Roger, Jonathon,	Roger, Josiah, Drew, Lisa		
Job Training					
	Yes		Roger, Josiah, Rex, Shane, Manny, Raymond	Nick, Greg	

	No	Lucas, Marcus, Jonathon, Joseph, Roxy	Drew, Zac, Brian, Lisa	Kasey	
	Not asked by Interviewer	Ceaser	Danae		
Writing Description					
	Performance Accomplishment (i.e. past experience)	Lucas, Marcus, Jonathon, Joseph, Ceaser, Roxy	Roger, Josiah, Rex, Danae, Shane, Drew, Zac, Manny, Brian, Raymond, Lisa	Nick, Greg, Kasey	
	Vicarious Experience (i.e. modelling by others)	Lucas, Jonathon, Joseph, Ceaser	Roger, Danae, Shane, Zac, Lisa		
	Social Persuasion (i.e. coaching and evaluative feedback)	Lucas, Marcus, Jonathon, Joseph, Ceaser, Roxy	Josiah, Danae, Shane, Drew, Manny, Raymond, Lisa	Nick,	
	Physiological and Emotional States	Lucas, Joseph, Ceaser	Josiah, Rex, Zac		
Wrt Col Dis					
	Yes	Lucas, Jonathon, Joseph, Roxy	Roger, Josiah, Danae, Drew, Zac, Manny, Brian, Lisa	Nick, Greg, Kasey	
	No	Marcus, Ceaser	Rex, Raymond		
	Unsure		Shane		
	Unclear/Not asked by Interviewer				
Wrt Dis					
	Yes	Lucas, Marcus, Roxy	Roger, Danae, Shane, Drew, Zac, Manny, Raymond, Lisa	Greg	
	No		Brian		
	Unsure				
	Unclear/Not asked by Interviewer	Jonathon, Joseph, Ceaser	Josiah, Rex	Nick, Kasey	

Table 4b. Interviewees Writing Confidence Organized by other Variables

Writing Confidence	Very Confident	Confident	Average Confidence	Low/No Confidence	
Location					N
Rural	3	3			10
Urban	2	4			10
Unclear	1	4	2		7
Age in Years					
25-35	2	5	2		9
36-45	2	4	1		7
46-55		1			1
56-65	2				2
Number of Years as a Professional					
0-2	1	2			3
3-5		2	1		3
6-8	1	2			4
9-11	1				1
12 or more	2	4			6
Job Training					
Yes		6	2		8
No	5	4	1		10
Not asked by Interviewer	1	1			2
Writing Description					
Performance Accomplishment (i.e. past experience)	6	11	3		20
Vicarious Experience (i.e. modelling by others)	4	5			9
Social Persuasion (i.e. coaching and evaluative feedback)	6	7	1		7
Physiological and Emotional States	3	3			6

Writing Dissatisfaction – Expressed by Colleagues					
Yes	4	8	3		15
No	2	2			4
Unsure		1			1
Unclear/Not asked by Interviewer					
Writing Dissatisfaction - Self					
Yes	3	8	1		12
No		1			1
Unsure					0
Unclear/Not asked by Interviewer	3	1	2		6

Table 5. Writing Dissatisfaction: Illustrative Quotes (Amber, copy and paste the quotes here so we can compare between and across categories) – the X show that that person commented in each area. We may end up deleting the people who did not contribute ideas related to both – for now, just add them in so that we can analyze them further.

Level Confidence	Dissatisfaction Expressed by Colleagues (15 people)	Dissatisfaction with Self (12 people)
Very Confident		
Lucas	<p>X</p> <p>Interviewer: Um, how about something you were dissatisfied with or weren't satisfied with.</p> <p>Participant: I'm never satisfied with it.</p> <p>Interviewer: What particular things?</p> <p>Participant: Ah, well that's always just going to be one of those things, I can read the same thing three times, and I can always find something I want to change. Um, you know, it goes back to editing</p>	<p>X</p> <p>Interviewer: (Pause) Sorry, I'm look at the next question here. Can you describe a time when you produced something in writing that did not meet with the satisfaction of your colleagues?</p> <p>Participant: Uh, which time do you want? yeah, coming from the creative fields, that happened all the time. Um, so, yeah. What do you want to know about it?</p>

IUP 2017-2018 Expansion of CAE-C Program Mid-year Report

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Mid-year Report

IUP's Expansion of CAE-C Program 2017-2018: An Interdisciplinary, Multifaceted Approach to Enhance Cybersecurity Education in Rural Pennsylvania

A. Executive Summary

In fall of 2017, Indiana University of Pennsylvania was awarded a grant from the National Security Agency as part of the Investment in Expansion of CAE-C Education Programs. In this project, IUP proposes to design and implement an innovative program to enhance Cybersecurity education in the surrounding region. The project proposes a set of activities and services designed with an interdisciplinary perspective to provide effective solutions to Cybersecurity challenges. In addition to services and activities to enhance general Cybersecurity knowledge and skills, a main focus of this funded project is to implement a novel program to enhance communications skills (soft skills) of Cybersecurity students and those aspiring to enter this promising field. Our ultimate objective is to propose an innovative and successful model that can easily be replicated at other schools and/or environments.

Work on the design and implementation of the proposed services has started once the notification of grant award was communicated to IUP. All project four Co-PIs along with the six graduate assistants and student workers hold meetings every other week to discuss project status and accomplishments and plan for future activities. Each of these meetings lasts between one and half hour to two hours, see project documents for complete details. In this midyear report, we briefly summarize the work and achievements we accomplished in this project so far. After the brief description below, each of the following sections will be dedicated to discuss and present the details of each of the proposed services.

Complete information about the project including resources and activities in each of the proposed service can be found on the IUP Expansion of CAE-C Program Web Portal at:

<http://www.iup.edu/caecexpansion>

Brief Description

The IUP's expansion of CAE-C Programs implements six different services that work collaboratively to achieve the main objective of the program, the enhancement of Cybersecurity education in the entire region and nationwide. Figure 1 visually depicts these six services and the main expected outcome of their successful implementation. One of the unique aspects of our project is its innovative approach to address challenges facing Cybersecurity education. The proposed approaches are innovative for several reasons:

1. The approach begins with a research component that will guide key steps of the project and add to the body of knowledge in cybersecurity education.

2. It includes collaboration between IUP's Institute for Cybersecurity and the university's writing center in order to deliver instruction to students from rural areas. This collaboration puts to work the established expertise of faculty from Computer Science, Political Science, English, and Education.
3. It includes the use of multiple approaches to solve persistent challenges in cybersecurity education. The approaches include interactive learning experience, flexible delivery format, and flexible structural design. These are reflected in Figure 1.
4. It is easily replicable for other institutions and rural areas. All materials will be made available to rural schools.

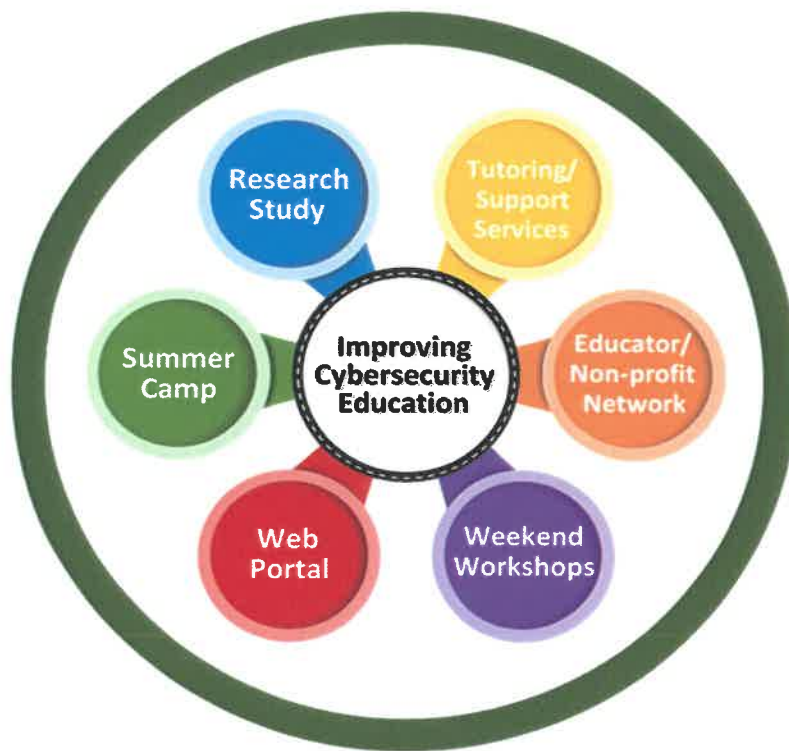


Figure 1: Proposed services to enhance cybersecurity education in rural Pennsylvania.

Section 2.11 of the submitted grant proposal (Deliverables) describes a set of items that represents the outcomes of this project. We believe that we have achieved considerable success in designing and implementing each of the proposed services/activities. The remainder of this mid-year report is organized into various sections each is dedicated to summarize work and achievements in each of the project components (depicted in Figure 1).

B. Tutoring/Support Service

By Dr. Ben Rafoth, co-PI

A key feature of the CNAP project is the writing component and is based on collaboration between IUP's Institute for Cybersecurity and IUP's Jones White Writing Center. The goal is to deliver writing skills instruction to cyber security students living in rural areas. The collaboration brings a unique interdisciplinary perspective to the design and implementation of the project's proposed solutions for enhancing cybersecurity education in rural western Pennsylvania. As a result, students who traditionally have had little access to cybersecurity education in secondary and post-secondary schools will now have access to an integrated curriculum and teaching methods for those writing and speaking skills that are essential for careers in cybersecurity.

The following list describes accomplishments to date for meeting the goals and objectives of the grant project with respect to the writing component.

Overview of Accomplishments to Date

The results of the research component of this project have been analyzed for conclusions and implications that apply to (1) input from career professionals about the challenges of using writing and speaking skills in their jobs, (2) current CS students' attitudes about the value of writing for their future careers, and (3) current CS students' self-assessments about their individual writing and speaking skills. Results from these areas of the research component and from extant published research provided the basis for designing a comprehensive program for delivering individualized instruction to cybersecurity students who must complete writing assignments as part of their computer science course curriculum at the university.

Specific Accomplishments to Date by Dr. Rafoth and his Graduate Assistant

- Designed and led two workshop sessions for groups of 40-50 students
 - On December 2, 2017 and again on February 17, 2018, workshop sessions led by Dr. Rafoth were part of a day-long event attended by students already enrolled in or interested in cybersecurity studies. The writing workshop, entitled "'Greetings' from The Void: Communicating While Under Cyber Attack," was designed as a simulation exercise and was based on the NSA's National Level Exercise 2012. During the workshop, participants were given a brief lesson about the critical role of clear, accurate, and rapid communication when an organization is under intense pressure from a threat actor. The bulk of the workshop consisted of the simulation—a disruption in service attack on their company—and the company's urgent need for clear and cogent written communication from the IT department to various parts of the organization. The purpose of the simulation was to create an experience of writing under pressure and then to provide feedback on the clarity, accuracy, and effectiveness of the participants' written communications. Follow-up evaluations by the participants were very positive.

- Developed a training program for writing tutors
 - During the past three months, Dr. Rafoth and his assistant have developed a program to train tutors to assist students who are enrolled in computer science courses and who are required to complete assignments that require advanced writing skills. This program was in addition to the training tutors already receive as part of their work in the university writing center and was tailored to the technical aspects of writing. In addition, tutors were trained to work online for those students who are unable to meet their tutor on campus. The online platform provides synchronous audio and video communication with screen sharing so that students can share their papers with their tutors.
- Hired and trained writing tutors in computer science and STEM field
 - Six tutors were hired specifically for their strong academic backgrounds, STEM-related majors, and previous experience with tutoring, teaching, or coaching. They met for two training sessions and have received ongoing feedback and supervision.
- Provided input to one computer science faculty member regarding the design of writing assignments
 - A key element for improving students' writing skills is ensuring that instructors' assignments convey a clear purpose and establish clear and specific expectations. This enables students and tutors to have productive meetings. Dr. Rafoth consulted with one computer science professor about his assignments and will continue to offer advice for additional faculty.
- Developed resource materials to support tutoring for cybersecurity students and assess its effectiveness
 - Materials to teach writing skills were developed for tutors to use in their sessions with students. Tutors were also trained to administer an assessment instrument required by one instructor. The instrument measured students' knowledge of organization, punctuation, and proofreading at the beginning and at the end of the tutoring sessions.
- Recruited student participants to meet with tutors
 - Visits to computer science classes by Dr. Rafoth or his graduate assistant informed students about the free, high-quality tutoring available to them for their writing assignments. Students were encouraged to take advantage of tutoring services offered in two locations, Stright Hall (where most computer science classes are offered) and the Jones White Writing Center.
- Created writing resources for cybersecurity students on the web portal.

- Resources are available at <https://www.iup.edu/compsci/events/cae-c-expansion/writing-and-communication-skills-tutoring/>. Additional resources will be posted here in the coming weeks.

C. Research Component

By Dr. Crystal Machado, Co-PI

Interdisciplinary Team: Drs. Farag, Fiddner, Rafoth and Machado, Krista Sarraf, Amber Stewart, Jennifer Baggett, Zhengqi Hu

Research Team: Machado, Krista Sarraf, Amber Stewart, Jennifer Baggett, Zhengqi Hu, doctoral students enrolled in ALS852 School Evaluation – fall 2017, and CURR983 Analysis of Qualitative and Mixed Method Research in Education.

Research Study Timeline for Fall 2017

Presented below are phases 1-3 of the research process that unfolded in fall 2017. During phase 1 and 2 Dr. Machado engaged the interdisciplinary team in instrument design, validation and critique of the IRB application.

During phase 3 Dr. Machado provided extensive training to the research team who would be involved in qualitative and quantitative data collection. Doctoral graduate assistants Sarraf and Baggett administered the survey to computer science students. Following this, Dr. Machado presented preliminary analysis of the data to the interdisciplinary team so that Dr. Rafoth and Ms. Sarraf could develop programming for computer science students.

Under the supervision of Dr. Machado, the research team collected, transcribed and coded interview data. Dr. Machado presented preliminary analysis of the qualitative data to members of the interdisciplinary team so that so that Dr. Rafoth and Ms. Sarraf could develop programming for computer science students.

Phase 1: Review of Literature

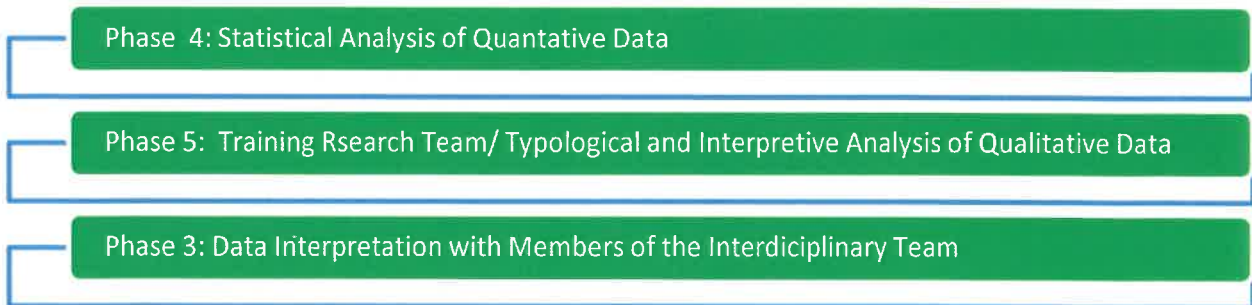
Phase 2: Study Design, Instrument Design, and IRB Application Approval

Phase 3: Training Research Team, Collection and Preliminary Analysis of Quantitative and Qualitative Data

Research Study Timeline for Spring 2018

Presented below are phases 4-6 of the research process that began in spring 2018. During phase 1 Dr. Machado used SPSS to analyze the quantitative data. She presented the results and engaged the interdisciplinary team (Frag, Fiddner, Rafoth, doctoral graduate assistants, and student workers) in interpretation of the data.

Dr. Machado is currently engaged in implementing phase 5 of the study. She provided her graduate assistant with training on how to code the qualitative items in the survey and interview data. She is currently engaged in providing her research team with training related to qualitative data analysis. She has begun to present findings with members of the research team, on an ongoing basis so that Dr. Farag, Dr. Rafoth and Ms. Sarraf can develop programming for computer science students. Following analysis of the qualitative data, Dr. Machado will merge the two streams of data and begin development manuscript preparation. This will occur during phases 7-9, in summer 2018.



Representative findings of the Research Study are given in Appendix 1 of this report. Additional details as well as up-to-date information about the Research Study and its findings are available on the dedicated Research Study section of the project portal at <https://www.iup.edu/compsci/events/cae-c-expansion/research-study/>.

D. Weekend Cybersecurity Workshops

By Dr. Waleed Farag, PI

As described in Section 2.7 of the grant proposal (Proposed weekend cybersecurity workshops), our team has designed and offered a number of weekend Cybersecurity skill enhancement workshops that offered very engaging sessions on various aspects of Cybersecurity. So far, we have offered two workshops and are planning to offer one-two more in the near future. The first workshop was held on December 2, 2017 while the second one was held on February 17, 2018, both at IUP main campus. Our team chose to offer these workshops on the weekends (Saturdays) to enable middle and high school students from surrounding school districts to attend these events and benefit from the content we offer. The project PI have contacted the superintendent and various principals of local high and middle schools and have distributed flyers and workshop information

at these surrounding local schools. The choice of Saturdays also provided college students with better chance of attending these workshops without worrying about schedule conflicts with their weekly classes. Each of the two offered workshops have been well attended in which about thirty participants attended each one of them. Participants include middle and high school students and teachers, college students, university faculty and staff, and members of the local community. Each workshop featured interactive, hands-on sessions facilitated by qualified security experts guest speakers and the grant Co-PIs. Information about the most recently offered workshop (February 17, 2018) is given below:

- **Workshop Date/time:** Saturday, February 17, 2018, 9:00 a.m.–2:30 p.m.
- **Registration:** *E-mail the following info: Applicant's Full Name, E-mail, Postal Address, Phone, and School to cae-c-expansion@iup.edu by February 12 to register.* Space is limited, and registration will be accepted based on first-come, first-served.
- **Workshop Location:** 112A Stright Hall (210 South 10th Street, Indiana, PA 15705).
- **Open to all interested students (middle school, high school, and college students) and teachers.**
- **Sponsored by the NSA and IUP.**
- **Free lunch** will be offered.
- **[Cybersecurity Workshop Flyer](#)**, see also Appendix 2
- **Workshop Schedule:**
 - 9:00 am: Welcome and Opening Remarks, Dr. Farag, IUP
 - 9:15–10:45: Cybersecurity 101: A Hands-On Session, Dr. Isaac Porche (Guest Speaker), Rand Corporation
 - 11:00–12:30: Communicating While Under Cyber Attack, Dr. Rafoth, IUP
 - 12:30–1:00: Free Lunch
 - 1:00–2:30: Global Cyber-Crises Simulation: WWII?, Dr. Fiddner, IUP

As will be discussed in details in the next section, a main component of this project to foster a Cybersecurity community in the entire western Pennsylvania region. One representative example of work on building such a community is our outreach efforts to collaborate with the Westmoreland County Community College. Three Co-PIs have coordinated a visit to the Westmoreland County Community College (WCCC) on January 18, 2018 and held a productive meeting with several Deans, faculty members and school administrators of WCCC. One outcome of this meeting is a developed action plan that outlines specific collaboration activities. Details of this plan will be discussed in the next section. Below is just one item of this activities related to the holding of a Cybersecurity workshop.

- IUP's expansion of CAE-C project team will hold a Cybersecurity Skill Improvement Workshop at WCCC on Sat, March 24, 2018. IUP team will arrange for the speakers and the contents to be delivered while WCCC team will host the workshop and take care of space, computing facilities, participant recruitment and other logistics. Waleed Farag, Grant PI, will coordinate this activity.

Appendix 2 lists representative examples of workshop flyers and publicity efforts. Complete details as well as up-to-date information about the Weekend Cybersecurity Workshops are available on the dedicated Workshops section of the project portal at <https://www.iup.edu/compsci/events/cae-c-expansion/workshops/>. This info include multimedia content (photo gallery, carousels, and video library), flyers, session's content, presenters' information, registration instructions, locations, dates, etc.

E. Building a Cybersecurity Community (educator/non-profit network)

By Dr. Mac Fiddner, Co-PI

Significant efforts to establish a Cybersecurity Community in the surrounding regions adjacent to the Indiana County in western Pennsylvania have been undertaken by the Grant Co-PI, Dr. Fiddner. **In fact, of Indiana and the four contiguous counties, we have “networked” with 17 out of 56 school districts in those counties through our outreach efforts and related activities such as previous GenCyber summer camps for teachers. We have also “networked” with 4 out of 194 school districts in counties not contiguous to Indiana County in western Pennsylvania (Allegheny, Clarion, Fayette, and Somerset).** Brief summaries of activities and accomplishments in this component of the project are given below. Appendix 3 also lists representative email correspondences to establish this proposed community and publicize various services offered by this project.

Former GenCyber Summer Camp Teachers

Invited all former GenCyber Summer Camp teachers to both the Dec. 2, 2017, and Feb. 17, 2018, Improving Cybersecurity Skills Workshop and asked them to publicize them to their colleagues.

Community Colleges

Even though there are 5 community colleges in Western PA, because of the short amount of time of the CNAP initiative and distance from the IUP campus, the cybersecurity community team has decided to limit invitation to the CNAP initiative to the two closest ones: Pennsylvania Highland CC and Westmoreland County CC.

Pennsylvania Highlands CC

Participation was already underway and is continuing with Pennsylvania Highlands CC through a member of the faculty there, Dr. Kevin Slonka. Dr. Slonka attended both Improving Cybersecurity Skills Workshops (Dec. 2, 2017 and Feb. 17, 2018) and intends to administer the student survey to his students this term.

Westmoreland County CC

Dr.s Fiddner, Farag, and Rafoth met with administrators and faculty at Westmoreland County Community College (WCCC) on January 18, 2018. The meeting was productive. Several faculty members and administrators at WCCC showed interest in collaborating with IUP CNAP team in promoting cybersecurity skills including written and communication skills among students at both institutions and surrounding school districts. We tentatively agreed on the following:

- Michael Caglia will be the POC at WCCC.
- IUP CNAP team will hold a Cybersecurity Skill Improvement Workshop at WCCC on Sat, March 24, 2018. IUP team will arrange for the speakers and the contents to be delivered while WCCC team will host the workshop and take care of space, computing facilities, participant recruitment and other logistics. **Waleed Farag will coordinate this activity.**
- A number of faculty at WCCC will request students in a number of computer/cybersecurity related courses to utilize the online Communication Skill Improvement Tutoring Service that IUP offers. Both Asynchronous and Synchronous service will be used. **Ben Rafoth will coordinate this activity.**
- A number of faculty at WCCC will collaborate with IUP team to collect data to help with our Research Study by recruiting student participants from WCCC. IUP will provide the approved IUP IRB protocol and WCCC Team will seek permission to administer these surveys at WCCC. **Crystal Machado will coordinate this activity.**
- IUP will support WCCC's efforts trying to secure CAE designation.

Information about the IUP CNAP Co-PIs is listed below:

Dr. Waleed Farag, Professor of Computer Science and Director of the IUP Institute for Cybersecurity, CNAP PI, Web Page: <http://www.people.iup.edu/farag>

Dr. Mac Fiddner, Associate Professor of Political Science, CNAP Co-PI, Web Page: <https://www.iup.edu/politicalscience/faculty/fiddner,-dighton/>

Dr. Crystal Machado, Associate Professor of Education and Master in Education Program Coordinator, CNAP Co-PI, Web Page: <https://www.iup.edu/pse/faculty/machado,-crystal/>

Dr. Ben Rafoth, Professor of English and Director of the IUP Writing Center, CNAP Co-PI, Web Page: <https://www.iup.edu/english/faculty/program-directors/ben-rafoth/>

Elementary/Secondary Schools

Because of the large number of school districts with no centralized way of contact in Western Pennsylvania (250) and short amount of time of the CNAP initiative, the cybersecurity community team has decided to limit recruiting of elementary and secondary schools to the counties contiguous to Indiana County: Jefferson, Westmoreland, Cambria, Armstrong with 56 combined school districts.

North/Central Cambria**(former student Matt Corran made initial contact)****Holy Name Elementary School:**

Mrs McMullen (principal): (814) 472-8817

Very warm reception from the staff, but Mrs. McMullen thought the students in Holy Name were too young to benefit from this initiative. She did however replicate copies of the Feb. 17, 2018 workshop flier and distribute it to her teachers.

Bishop Carroll High School:

(814) 472-7500 Mrs Ratchford

Copies of Feb. 17th workshop flier were given to the office manager whom said that she'd deliver it to Mrs Ratchford, the Principle. In addition to that, the IT guy for the school (Thomas (Ed) Graffte) was in the office; the program was explained, and they thanked me for stopping by. Mrs. Ratchford provided me Mr. Thomas (Ed) Graffte as a point of contact. I e-mailed him Feb. 17th Cybersecurity Skills Improvement Workshop flier, PowerPoint presentation, and executive summary.

Central Cambria High School:

(814) 472-8860

The Feb. 17th workshop flier was delivered to the office manager and explained in pretty thorough detail what the objectives were. She said that she'd pass it on to guidance, and make sure they receive it. I specifically mentioned Randy Wilson as well. Spoke to Randy and e-mailed him Cybersecurity Skills Improvement Workshop flier, PowerPoint presentation, and executive summary.

Johnstown/South Cambria Area**(GA Alex Ashcom provided contacts)**

- **Bishop McCort High School:** Mary Luna (814)-536-8991

- **Johnstown High School:** Michael Dadey (814)-533-5601
- **Richland High School:** Brandon Bailey 814-266-6081
- **Westmont Hilltop High School:** Thomas Mitchell (814)-255-8726
- **Ferndale High School:** Travis Robison (814)-288-5757
- **Conemaugh Valley HS** (No admin listed): (814)-535-5523
- **Windber High School:** Richard Lucas (814)-467-4567
- **Conemaugh Township Elementary School** Deborah Mishler Deborah.Mishler@ctasd.org. Continued dialogue with her at Feb. 17th Cybersecurity Skills Improvement Workshop.

IUP IT Services

Even though Paul Griggs has been fully integrated into the improving and expanding cybersecurity education in rural areas effort, Waleed Farag and Mac Fiddner met with Dan Yuhah and Paul, IUP IT Services, to inform them more fully of the scope of the NSA-sponsored initiative and to solicit IT's support for the effort. Mac and Waleed emphasized that even though technical skills are not being neglected, the main thrust of the initiative is to improve students' soft/communicative skills, e.g., critical thinking, writing, and oral presentation.

As a result of the meeting, Dan and Paul agreed to:

1. Continue to provide expertise and expert advice as speakers, instructors, and participants in cybersecurity education efforts for this initiative;
2. Explore introducing members of the initiative to IT professionals, employers, and professional organizations for expertise, educational support, mentoring, shadowing, and possibly short-and long-term internships;
3. Consider providing short-term shadowing and mentoring opportunities for IUP cybersecurity students;
4. Explore long-term enduring funding sources for the identified practices that improve cybersecurity education after the NSA grant expires; and
5. Provide expertise and assistance in posting cybersecurity educational pedagogical devices and advice for practitioners once the site's web portal is created.

University of Pittsburgh Institute for Cyber Law, Policy, and Security

Renewed acquaintance with Michael Madison, Senior Scholar and Academic Director, on February 21, and met Beth Schwanke, Executive Director, University of Pittsburgh Institute for Cyber Law, Policy, and Security, <http://cyber.pitt.edu/home>, on February 22, 2018.

They are interested in finding ways IUP and Pitt Cyber might amplify each other's efforts, particularly IUP's rural and modular education efforts. In the near term, they would be more than

happy to share information about opportunities for students at our camps and workshops etc. via our social media, so please don't hesitate to send any links on once you have them.

Pitt's high school cyber camp, which uses the Air Force Association's curriculum, will be held July 23-27. Instructors from IUP if interested would be welcomed. The Institute can offer a stipend of \$1,000 for anyone who is able to join us for a full week. They will send information in the next few weeks that could be circulated to anyone who might be interested in teaching.

Additional details and up-to-date information about building the proposed Cybersecurity Community are available on the dedicated Cybersecurity Community section of the project portal at <https://www.iup.edu/compsci/events/cae-c-expansion/cybersecurity-community/>.

F. Web Portal

By Dr. Waleed Farag, PI

As indicated in the grant proposal and mentioned a number of times before, we have developed a comprehensive Web Portal for this project that facilitate access to various project services and resources. Each of the project components has its own dedicated section on the Web Portal. The Portal also features various multimedia content (carousels, photo gallery, and video library) that document various project activates such as the offered Weekend Workshops as well as project documents and in the news section. The project Web Portal can be access using the following URL:

www.iup.edu/caeexpansion

G. Summer Camp

By Dr. Waleed Farag, PI

The project team has just started the planning for the proposed summer camp that will be modeled after our successful offering of several GenCyber summer camps for middle and high school students and teachers. Additional information about this camp will be posted on its section on the project Web Portal at the following URL: <https://www.iup.edu/compsci/events/cae-c-expansion/summer-camp/>.

H. Project Documents

By Dr. Waleed Farag, PI

Complete documentation regarding the project bi-monthly meetings including meetings' agendas, minutes, whole packets (attachments) can be accessed on the project Web Portal via the following URL: <https://www.iup.edu/compsci/events/cae-c-expansion/project-documents/>

I. Project Media Coverage

By Dr. Waleed Farag, PI

The project activities have been recognized and covered by various local and regional media outlets. Representative examples of these media coverage can be found in Appendix 4. We are also in the process of designing in-the-news section on the project Web Portal (www.iup.edu/caecexpansion) with updated information about media coverage.

J. Project Administration

By Dr. Waleed Farag, PI

The project PI, Dr. Farag is responsible for various administrative and financial tasks in this projects. So far, the administration of this project is going smoothly in spite of few difficulties faced at the initial phases of this project. Some representative administrative activities are listed below.

- Taking care of all financial and budget activities include payments to project Co-PIs and all students who work on the project.
- Hiring graduate and undergraduate student assistants to work in this project to facilitate the offering of various services and activities.
 - We are currently employing three graduate assistants who help the Co-PIs on various research oriented and tutoring tasks.
 - We are employing eight undergraduate students who work as peer-tutors and on various other activities such as administrative and web maintenance.
 - We work with IUP HR to ensure that all students working with us have the needed security clearances to enable them to interact with other students.
- Purchasing needed software.
- Recruiting qualified guest speakers and work with our financial office to prepare and execute contractual agreements with various guest speakers to facilitate honorarium payment (as approved by the grant).

Appendixes follow:

ENDURING SUPPORT

Tutoring

- 1 GA @ \$24,000 (\$14,000 out-of-state waiver + \$10,000 stipend).
- Tutors' wages @ \$5,400 (20 hours per week x \$9 x 30 weeks).
- Software @ \$300

Total: ~ \$30,000

Possible funding or personnel for:

Internships

Paid (preferable) or unpaid for summer or during academic terms

Shadowing

For any period of time from a couple of hours, a day, a couple of days, to longer

Mentoring

Advisor to guide student(s) in their professional/academic pursuits

Speakers

For cybersecurity-related events, e.g., Cybersecurity Day events, workshops, summer camps, classes, and any other that might publicize and inform public and prospective practitioners

Expert Instructors

Guest lecturers, workshops, summer camps