

An Interdisciplinary, Multifaceted Approach to Enhance Cybersecurity Education in Western Pennsylvania

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Project Overview ^{1/2}

- IUP is located in Indiana, PA and is surrounded with mostly rural school districts.
- This presentation summarizes an ongoing project that is funded by the NSA's Investment in Expansion of the CAE-C Education Program.
- The project proposes a set of activities and services designed with an interdisciplinary perspective to provide effective solutions to challenges facing the cybersecurity field.
- Specifically, it presents an innovative approach to enhance cybersecurity education.

Project Overview ^{2/2}



Project Features 1/1

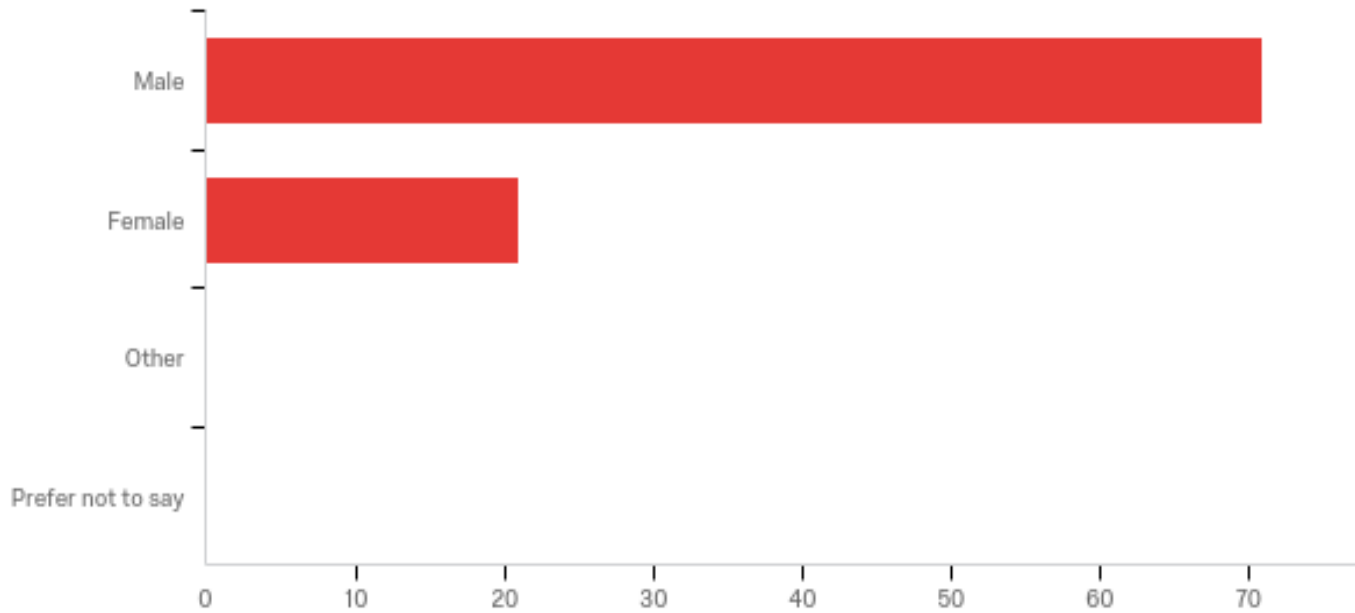
- It starts with a research component that will guide key steps and/or add to the CS body of knowledge.
- It includes collaboration between our Cybersecurity program and IUP's Writing Center to deliver instructions to students and help improve their soft skills.
- It involves faculty from four different disciplines.
- It proposes the use of multiple approaches to solve persistent challenges in cybersecurity education.
- It employs a set of assessment approaches throughout various project execution phases.

Research Study ^{1/4}

- Qualitative Study:
 - Specific skills current cybersecurity practitioners identify as keys to early success in school and on the job.
- Quantitative Study:
 - Strengths and weaknesses in the academic preparation of IUP's currently enrolled undergraduate cybersecurity students (n~100), including soft skills.
- Instrument Design
 - Interview protocol, survey instrument, and IRB application.
- Data Collection, Analysis and Dissemination
 - Survey undergraduate CompSci majors in Oct. 2017.
 - Interviews with 20 cybersecurity practitioners in Nov. 17.

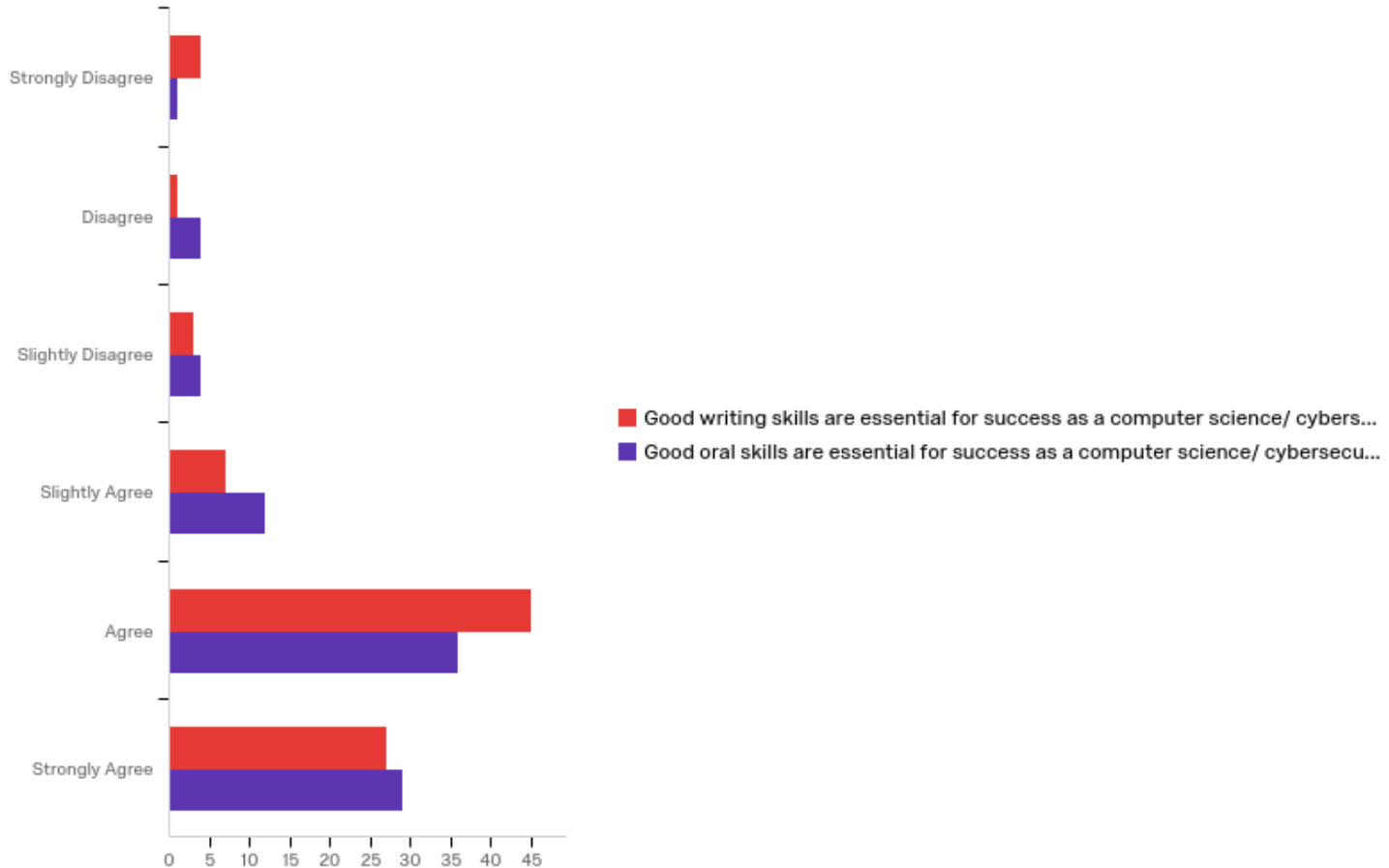
Research Study 2/4

Please indicate which gender you identify with.



Research Study 3/4

Please indicate the degree to which you disagree or agree with the following statements.



Research Study 4/4

Please indicate the degree to which you disagree or agree with the following statements.

- I use proofreading techniques to ensure that my work has no errors.
- People who have heard me give speeches and oral presentations say my delivery is effective.
- I use feedback to improve my writing.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree	Total
0%	6%	8%	30%	38%	18%	84
2%	7%	15%	24%	39%	12%	84
1%	2%	2%	24%	45%	25%	84

Tutoring Service ^{1/2}

- We have developed a diagnostic pretest to help students identify their writing strengths/weaknesses.
- Ongoing training and supervision are occurring for the Cybersecurity Writing Tutoring Group.
- This group consists of seven writing tutors familiar with STEM fields.
- Tutors apply their training to assist students working on cybersecurity-related writing assignments.
- We organized classroom visits to offer tutoring support to computer science students.

Tutoring Service ^{2/2}

- Students can now meet with a Cybersecurity Writing Tutor in the online cybersecurity-focused writing center or in face-to-face meetings.
- We compiled resources on the topic of writing in computer science courses, including model assignments, how-to videos, and help sheets.
- We are working with CompSci faculty to refine their cybersecurity-focused writing assignments.
- We are working with surrounding Community Colleges to use the service.
- Project Site: www.iup.edu/caecexpansion