



**CAE**  
IN CYBERSECURITY  
COMMUNITY

# Evidencing Competencies through Competitions

Daniel Manson – Cal Poly Pomona

Morgan Zantua – City University of Seattle



## Methodology

- IRB approved
- 18 months of semi-structured interviews-recorded
- Targeted audience of competitors
- Alignment to NICE, DoD & Montreat 360

2025 CAE Community Symposium

Methodology

Focused on “E”

### Essential Elements (ABCDE) Framework

To facilitate effective communication between students, educators and employers, we recommend the use of a shared set of elements when discussing competency.

<b>A</b> <b>Actor</b>	Who is involved in this competency? What background knowledge/ experience/previous learning are necessary for this competency?
<b>B</b> <b>Behavior/task</b>	What is being done? Cross reference with the DoD's DCWF framework or the NICE task/work role framework.
<b>C</b> <b>Conditions / scenario</b>	How is this task being done? With what resources, affordances and constraints?
<b>D</b> <b>Degree</b>	How long should this task take to complete? How accurate does it need to be? What degree of completion would be acceptable to an employer?
<b>E</b> <b>Employability</b>	What professional skills are also embedded in this practice (e.g. team work, collaboration, ethics etc.)?



**CAE**  
IN CYBERSECURITY  
COMMUNITY



**CAE**  
IN CYBERSECURITY  
COMMUNITY

## Research Landscape

- Semi-structured interviews
- Responses migrated to employability skills.
- Top competitors
- CAE competitions
  - CCDC
  - CPTC
  - NCL
  - NCAE
  - DOE CyberForce

## Interview Themes + Quote

- **Empathy**

“I helped them stay on task, while I tried to maintain discipline. My teammate said I had empathy in terms of really getting the team to work on the different tasks.” Helping the team be more disciplined and organized, required as much empathy as I could provide. I developed that in the CPTC. It was the feedback that I received from CPTC.” (P01)



**CAE**  
IN CYBERSECURITY  
COMMUNITY

# 2025 CAE Community Symposium

## Knowing Your Audience

- **Knowing your audience**

“We were also guided by integrity. Because if we say something incorrect or we lie to a client, they have everything logged. That's a great way to really end your career. Integrity was crucial to us. So, even though we took something down, we admitted it. We took ownership of it. We said it was our mistake. Here's what we did and here's how we can fix it and here's how we're going to continue doing it so that we don't do it again.” (P01)

“I wondered, before the CCDC, why do we need to understand business? During my presentation, I realized we wouldn't exist if the business isn't running anymore. During regionals I had to speak to the management about phishing. I had to present the financial loss to the company and how much we had to spend to minimize if not get rid of the problem.” (P03)

## Interview Themes

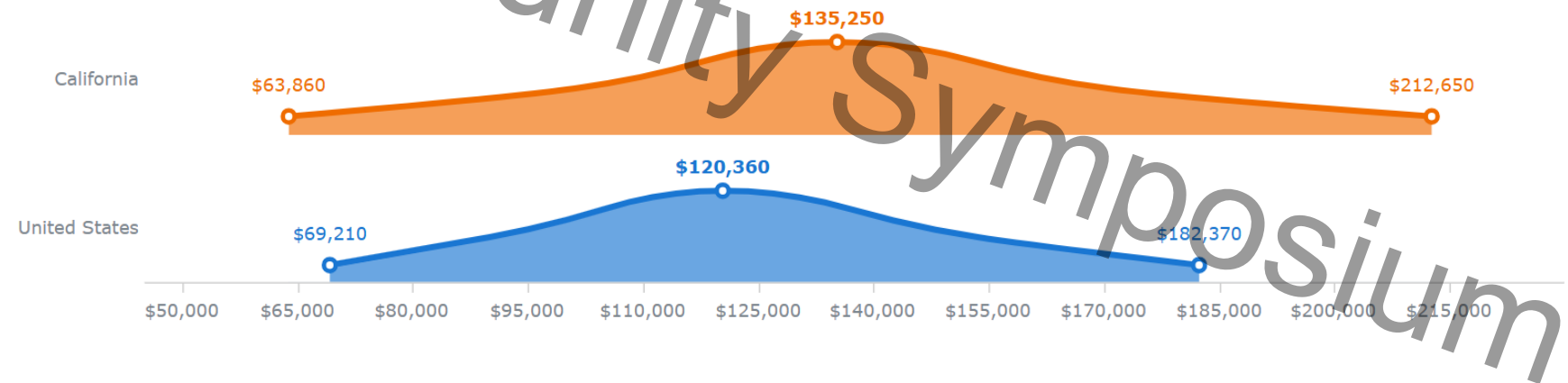
- **Teamwork**

“Someone who spent time on the team and in the club tends to be a lot better than someone who might be extremely technically strong but cannot work with other people. I assume you've probably both seen that type of individual, absolutely brilliant, but can not get anything done in a real environment, because no one is willing to work with them because they are just insufferable.” (P06)

“We're regular athletes. We get up, we go practice, we work out, we get with our team to prepare for our sports. I mean, cyber athletes. I work out, I get with my team to prepare mentally.” (P46)

## Interview Themes

- **Transferring competitions skills to employment**  
 “By the end of CPTC, every single person on the team, except for one, had an internship or a full time offer at a company. Their starting salary offers were all 6 figures.” (P01)



Retrieved from: [California Wages: 15-1212.00 - Information Security Analysts](#)

## Lessons Learned

- Competitors learn
  - Outside the classroom + what to learn in class
  - Under pressure
  - In depth skills
  - What cannot be taught – but is required



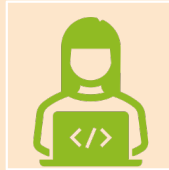
**CAE**  
IN CYBERSECURITY  
COMMUNITY

# 2025 CAE

## Future Research for Competencies Development



Expand the competition experience  
Earlier in the student's experience



Embed the club culture into schools  
Promote learning environments



Promote the learning environment  
Psychometric profiling of competitors

# Questions?

## Contact Information

Dan Manson – [dmanson@cpp.edu](mailto:dmanson@cpp.edu)

Morgan Zantua - [zantuamorgan@cityu.edu](mailto:zantuamorgan@cityu.edu)