

SKILLS & CHARACTERISTICS OF SUCCESSFUL CYBERSECURITY ADVOCATES

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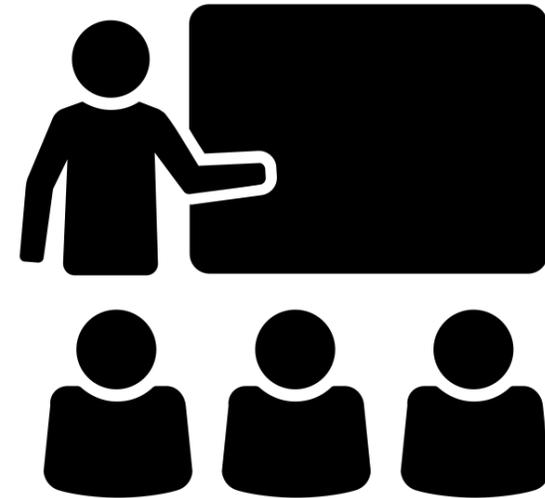
THE CYBERSECURITY PROBLEM

- Cyber attacks and threats are on the rise
- People often fail to implement basic cybersecurity practices
- Shortage of cybersecurity professionals



CYBERSECURITY ADVOCATES

- Promote security best practices, educate, persuade, serve as change agents for security adoption
- Address diverse audiences
- Rarely identified by their titles



THE GAP



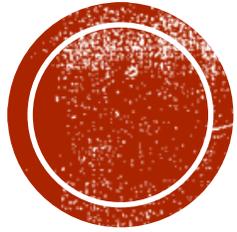
- Little is known about necessary skills for security advocates
- No clear career track for advocates
- Traditional security education and training almost solely focused on technical skills, not on developing advocacy competencies

STUDY PURPOSE

- Understand the characteristics and motivations of cybersecurity advocates
- Identify effective advocacy techniques within the security field
- Support security community efforts to recruit and develop these advocates

METHODOLOGY

- 19 semi-structured interviews and online demographic survey
- Recruitment
 - Researcher contacts
 - Internet searches
 - Snowballing
- Iterative, inductive coding and analysis to identify core concepts (Grounded Theory)



FINDINGS



DIVERSE BACKGROUNDS & ROLES

- Educational background
 - 9 participants with at least one degree in a non-technical field
 - 6 with no technical degree
- Careers
 - Experience in technical and non-technical fields
 - Industry, government, higher education, non-profits
 - Internal and external advocates

“They needed a translator to translate law to geek...And I learned that I sort of have a unique aptitude in this area where law and information security policy intersect.”

P15



TECHNICAL SKILLS



“This is a business that is very technology oriented, and full of people...who want to one-up you. So if you can’t kind of deal with that, it’s going to be hard for you to be an effective advocate because people will kind of eat you up unless you’re pretty convincing.”

P04

SOFT SKILLS



“We are terrible at soft skills. We’re very mono-cultured and bring technical solutions.”

P11

“If you’re a computer scientist, and all you know is the computer science, and you don’t have the empathy, you don’t have the skills to listen, ... you don’t have that psychological side, I don’t think you can make it work.”

P03



SOFT SKILLS

- Communication skills



“Being able to translate complicated things very simply is crucial to... advocating security.”

P02

- People skills

“I think people have to have a high emotional intelligence and especially empathy.”

P18



SOFT SKILLS

- Personal attributes

“Whenever I walk in the room, I assume I’m the stupidest one there, and everything works out great.”

P10



- Career and collaborative attributes



“The goal is to surface beliefs, combine them with other beliefs, come to a set of shared beliefs.”

P11

CONTEXT AWARENESS

- Awareness of environment, technology, people, and social and cultural structures



“You need to translate technical findings into the need for business action. And to do that, you have to understand the business at some level.”

P10

- Communicating the “why”

“[T]here’s a lot of mythology and a lot of things we do because we heard it’s the right thing to do, and we have no idea why, but everybody else seems to be doing it... And so trying to get people to stop and think it through, figure out what’s actually going to be effective and look at the threat models.”

P07



SERVICE ORIENTATION

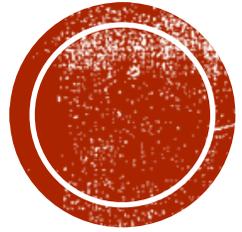
"I think we're making the world a better place."

P06



"It's important because of the implications of not doing it... the significance and the potential of loss of dollars, of information, of man hours, of intellectual property, sensitive information."

P01



IMPLICATIONS

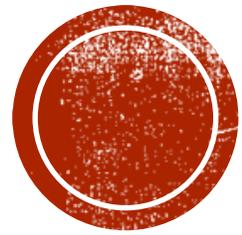


CYBERSECURITY ADVOCATE EDUCATION

- Establish continuing education efforts to aid progression from security professional to advocate
- Encourage development of change agent skills
- Support educational opportunities to facilitate discipline diversity

REFRAMING CYBERSECURITY

- Incorporate and emphasize non-technical skills as important to the success of security professionals
- Attract new populations to the cybersecurity field by marketing security as a people-oriented, service profession



QUESTIONS & DISCUSSION

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