SaTC: EDU: Educating STEM Students and Teachers about the Relevance of Social Engineering in Cyberattacks and Cybersecurity

Temple University College of Liberal Arts | Cybersecurity in Application, Research and Education Lab

https://sites.temple.edu/care/

Challenge:

- In 2020, 85% of breaches involved the human element and 36% of breaches involved phishing, a form of Social Engineering (SE), up 11% more the previous year
- SE attacks can result in damages ranging from $25,000 to multi-million dollars for direct financial loss, recovery cost, productivity loss, It can also result in reputation damage
- Despite the relevance of the human factor and substantial loss resulting from its exploitation in cyberattacks, the cybersecurity curriculum does not focus on SE
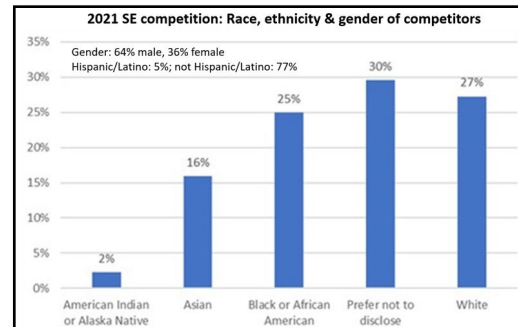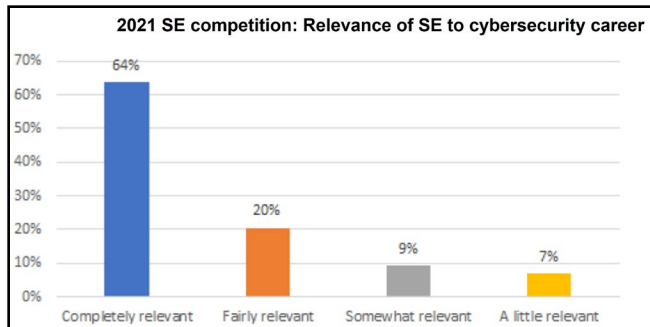
Solution:

- Educate students via a SE Capture the Flag (SECTF) competitions & hands-on course projects for classrooms
- Educate the educators by hosting online and in-person training workshops across multiple STEM disciplines
- Disseminate free resources such as SE course projects, datasets and analytic frameworks for research and education

Scientific Impact:

- Improve cybersecurity training that goes beyond purely technical learning to ensure the inclusivity of all STEM fields
- Generate new curricula and methods of instruction, emphasizing the relevance of the human factor in cybersecurity
- Foster partnerships between SE experts, social scientists, industry, government, and non-profits

Broader Impact:

- Educate the educators via workshops, course projects, repositories, analytical frameworks, and webinars
- Train next generation cybersecurity workforce about how to detect SE threats and protect themselves
- Improve diversity in the cybersecurity workforce

2021 SE competition: Relevance of SE to cybersecurity career

- Completely relevant: 64%
- Fairly relevant: 20%
- Somewhat relevant: 9%
- A little relevant: 7%

2021 SE competition: Race, ethnicity & gender of competitors

Gender: 64% male, 36% female
Hispanic/Latino: 5%; not Hispanic/Latino: 77%

- American Indian or Alaska Native: 2%
- Asian: 16%
- Black or African American: 25%
- Prefer not to disclose: 30%
- White: 27%

2021 SOCIAL ENGINEERING PEN TESTING COMPETITION WINNERS

High School: 1st place! VIMSIA Volts
Undergraduate: 1st place! RCC Cyber Hawks (SUNY Rockland)
Graduate: 1st place! Trust Us (NYU Tandon School Eng.)
Undergraduate: 2nd place! Iridescent (University of Virginia)
Graduate: 2nd place! Team Tay (Abertay University)
Undergraduate: 3rd place! Night Owls (Temple University)
Graduate: 3rd place! Tell Me Lies (Excelsior College)

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