



Improving Workplace and Societal Cybersecurity via Post-Secondary General Education

Presentation for:

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Systems Security Education

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Structure of this presentation



Backgrounds (mine and this scholarship)



Proposal: Call for more cybersecurity in Gen Ed college curricula



Ongoing & future work

My work/career

- Two decades in cyber risk management, critical infrastructure law & policy, governance, and cyber conflict.
- During first “internet bubble/dot-com bubble,” became a “translator” between tech and legal/executive.
- Evolved into critical information infrastructure protection/resilience and homeland security (George Mason Univ. Law School, DC area, 7 years) and international cyber law and policy (Stockholm University, 5 years).
- Joined UNH in 2017 and created the M.S. in Cybersecurity Policy & Risk Management. <https://online.unh.edu/cprm>
- J.D. from GMU, 2006. BA (political science) from Eckerd College, 1996.



Security

is always part of something
bigger



Larger picture



Mission/goal of the organization(s)



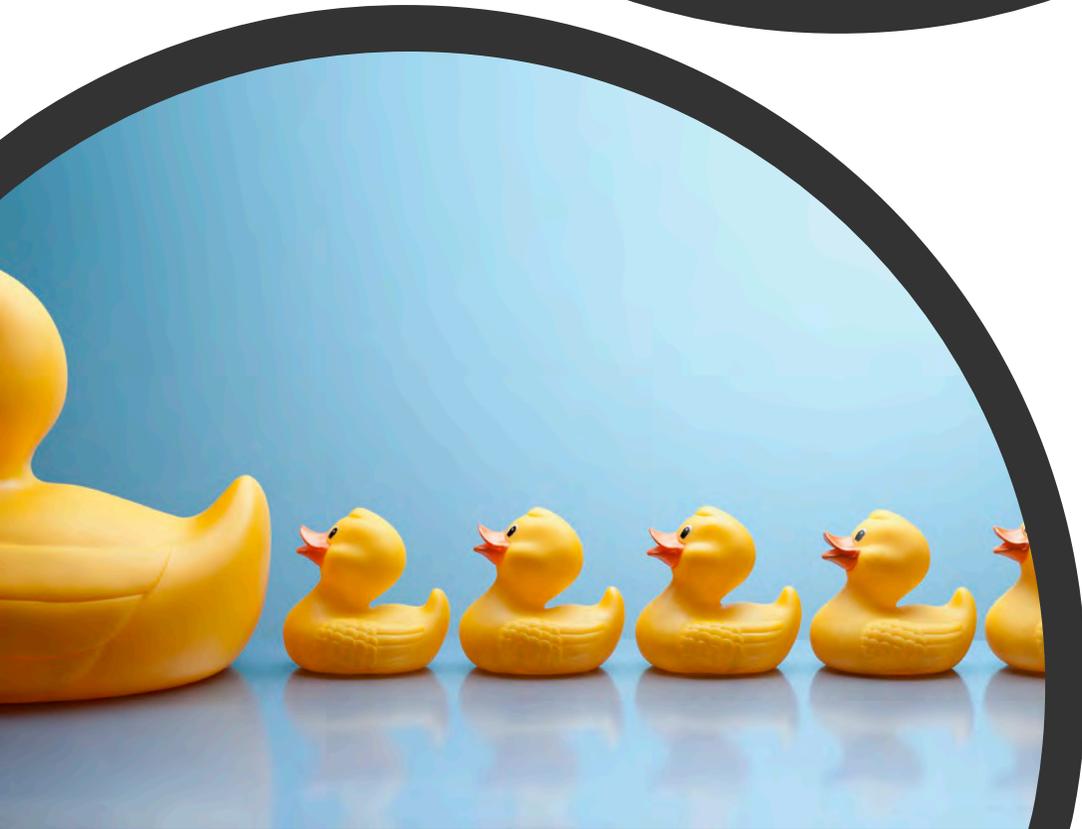
Organization or Community
(world, nation, region, agency, company, etc.)



Initiative, product or service



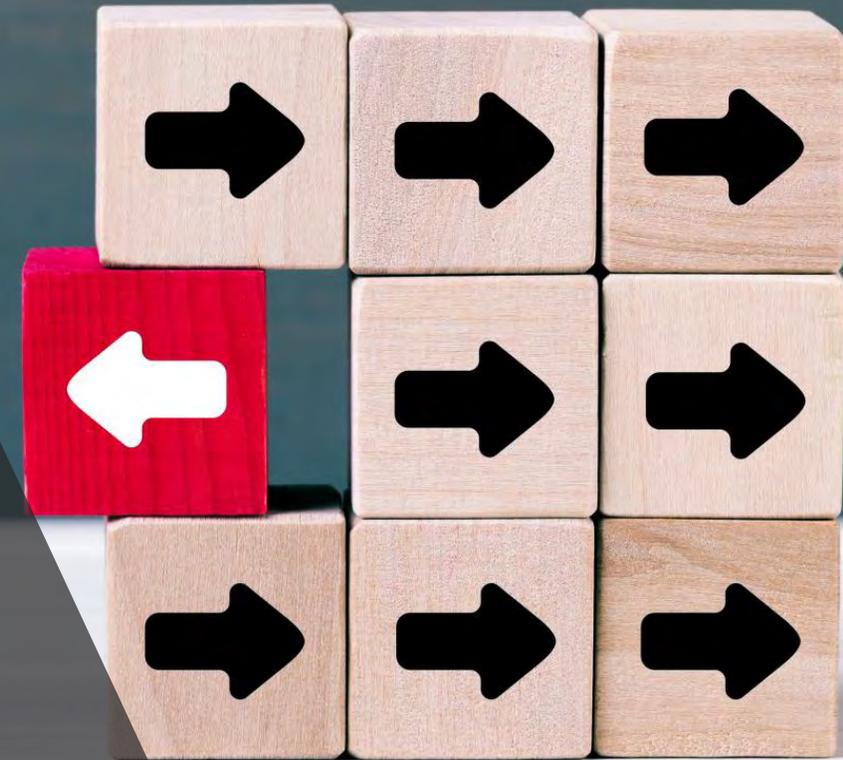
Think of Security as part of Risk Management



Everyone has a role to play in cybersecurity and cyber risk management, but people without security backgrounds seldom understand—let alone accept or endorse—such roles

Integral to Cyber
Risk Management:

Behavior change
and buy-in from all
end users



Behavior change & buy-in are two common goals of:

- Workplace cybersecurity awareness campaigns and training (and some societal initiatives)
- General education programs in higher education (among their other goals)





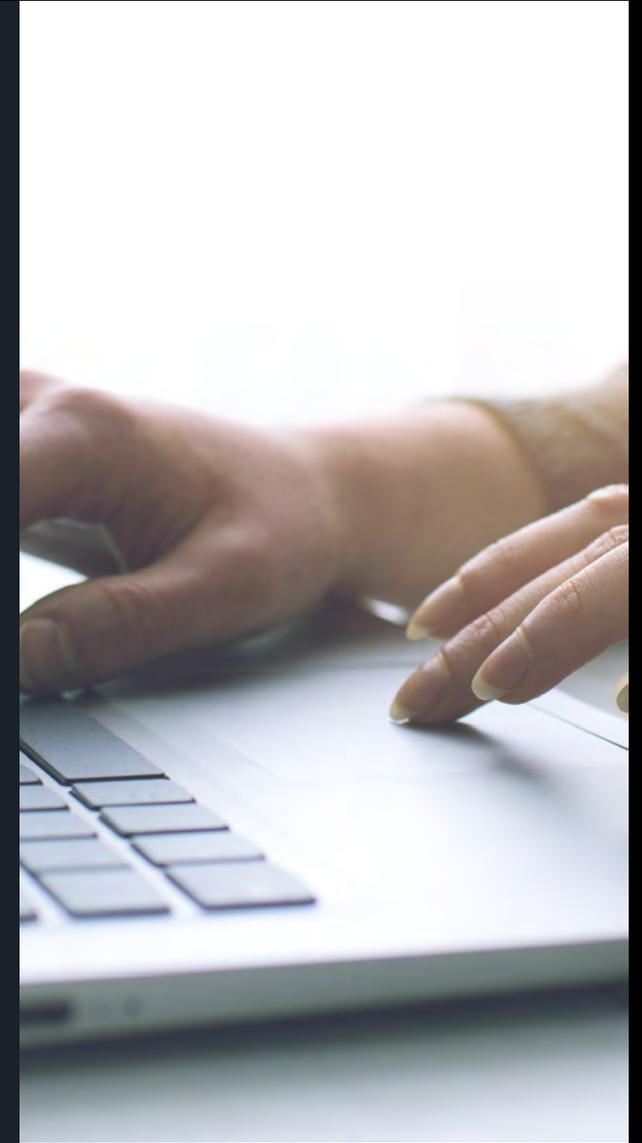
Cybersecurity awareness at the workplace is needed, but organizations are struggling

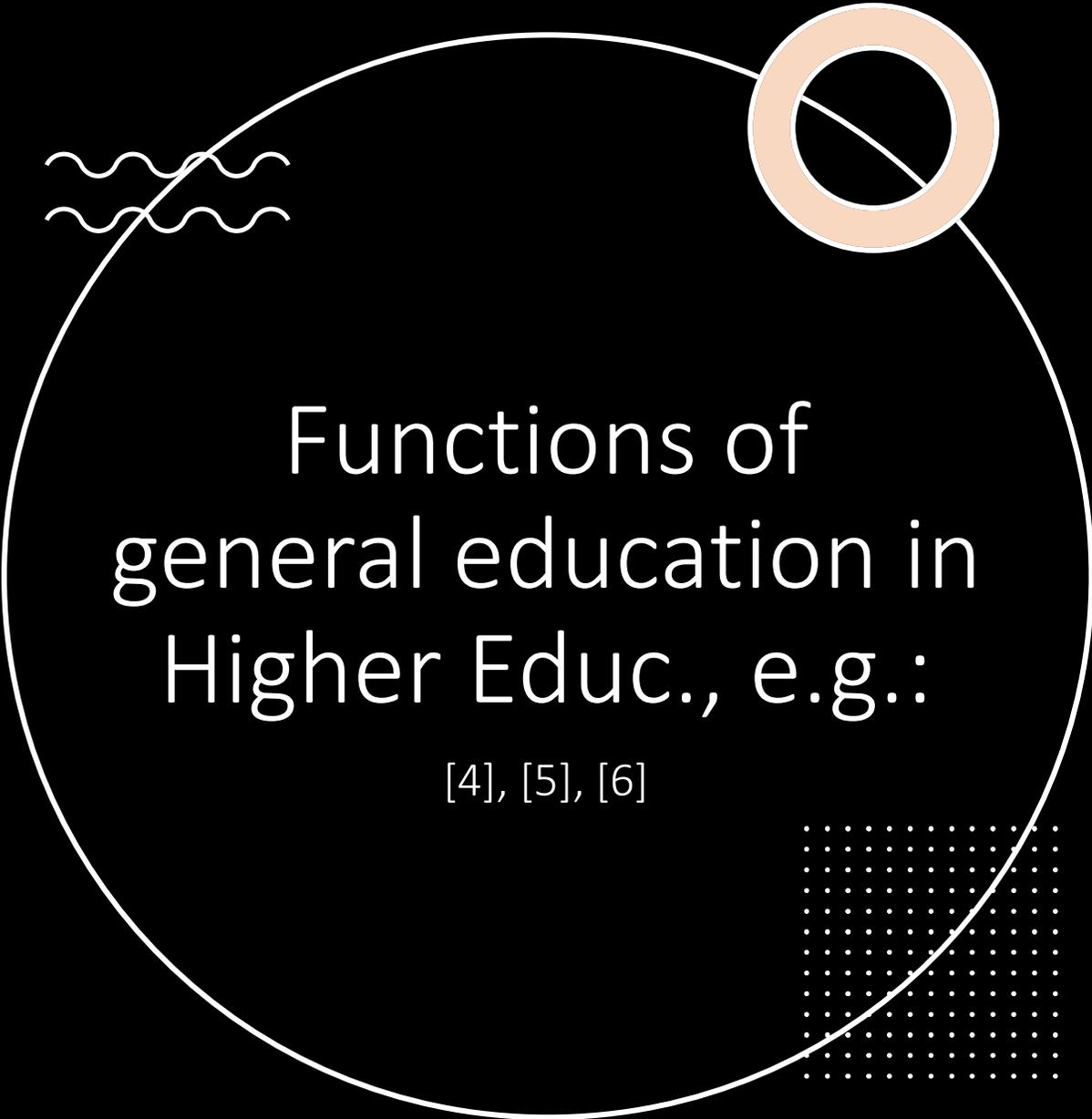
Surveys show that most organizations identify human error by employees as one of their largest vulnerabilities [1], [2].

Training/awareness programs struggle to effect the behavior change needed to sustain or improve the organization's cybersecurity posture [2], [3].

Key factors in the struggle are employees' [3]:

- Lack of acceptance of the need for cybersecurity training
- Misunderstanding of the concepts
- A low motivation to participate





Functions of general education in Higher Educ., e.g.:

[4], [5], [6]

Encourage exploration into broader contexts of a situation or discipline

Develop skills for extrapolating beyond one's own experience/understanding

Enhance abilities to spot problems and raise questions that can facilitate new or better knowledge

Expose students to the processes required to participate and collaborate in solving complex problems

Cultivate common knowledge and capabilities necessary to communicate and engage as citizens and members of a community

Comply with accrediting agencies that require incorporation of career/life preparation and citizen engagement into the curricula

Proposed Solution

More **cybersecurity in General Education** college curricula, with a *focus on workplace preparedness* (why cybersecurity is needed, end user roles and responsibilities, policy expectations, etc.).

Support in literature, but focus on, e.g.:

- home users/personal cyber hygiene [7] – [9]
- technical skills like forensics [8] & traffic analysis [9]
- recruitment of diverse students into cybersecurity majors [7] – [10]

Blend General Education goals and common needs for behavior change and buy-in at the workplace

Interconnected and communal/organizational risks.

Impact of individual actors in systems/organizations.

Processes of decision making and problem solving in collaborative and complex situations.

An understanding of, and advocacy for, individual responsibility to a collective cybersecurity good.

Engage & Motivate

Students place greater value on courses which they presume have a more direct correlation to career success [11], [12].

- Cybersecurity expectations exist in every workplace.

We need to incorporate various motivations to which students may engage differently, e.g.:

- Legitimacy (respect for authority/policy)
- Deterrence (fear of sanctions)
- Coordination (desire to collaborate in a greater goal/good)



Example learning objectives

- Construct real-world examples of the interconnected systems that we all work and live within and describe how threats, vulnerabilities, and opportunities may evolve.
- Explain how individual, daily activities can impact the security posture of an organization or community.
- Identify real-world factors (social, economic, political) that may alter everyday decisions and consequentially affect organizational cybersecurity postures.
- Develop practices to deliberately consider risk during daily activities, looking at individual, organizational, and societal consequences (near term and future).
- Access applicable cybersecurity policies (be aware of them and locate them) and discuss their impact on everyday activities.
- Research and maintain current knowledge of processes related to cybersecurity problem-spotting and incident response.
- Extrapolate common cybersecurity problems to a particular situation (e.g., hospital, factory, law firm, etc.) and recommend approaches for sustaining cybersecurity awareness among employees there.

Ongoing & future work

- This article:

M. Dion, “Improving Workplace and Societal Cybersecurity via Post-Secondary General Education,” *J. of the Colloq. for Inf. Syst. Secur. Educ.* [forthcoming].
- Future:
 - Open Education Resources (OER) to support broader deployment of workplace cybersecurity preparedness in college general education curricula.
 - Scholarship & OER to help advocate for such classes and measure the impact.

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- An interdisciplinary master's degree offered 100% online.
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