Branching Interactive Graphic Stories for Cybersecurity Education Lori Scarlatos, Stony Brook University Laurin Buchanan, Secure Decisions

Objectives and Significance

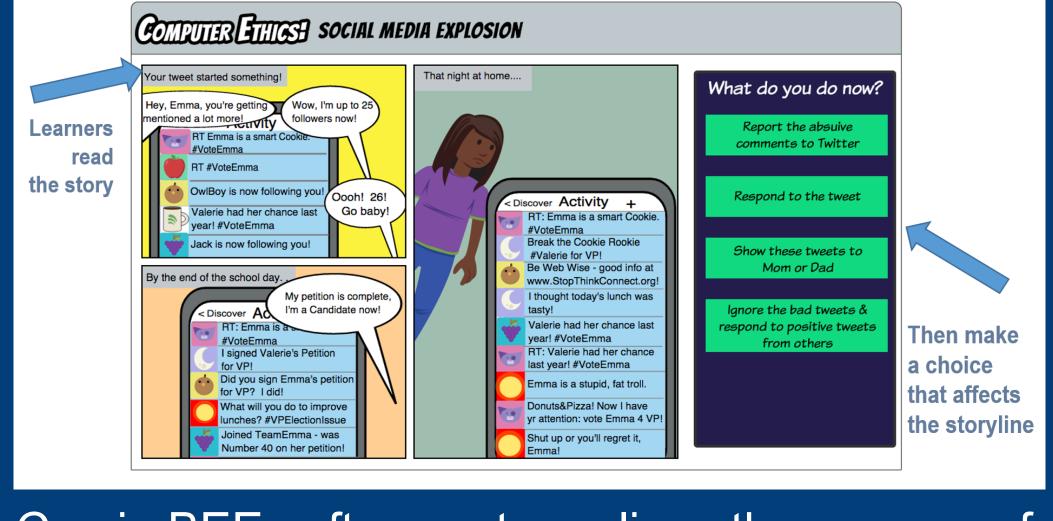
We need to train a diverse cohort of young people with strong backgrounds in math and science. Yet students in under-represented groups often drop these subjects in middle school.

Our vision is to bring cybersecurity education to a middle school audience with branching ("choose your own adventure"-style) comic book stories to:

1) Attract a diverse population of students to the field of cybersecurity

2) Teach cybersecurity concepts by giving students an opportunity to try different options in culturally meaningful scenarios; and
3) Assess student understanding of the concepts and their interconnectedness

"Choose Your Own Adventure" (CYOA) stories ask readers to make choices as the protagonist; based on these choices, a story can have many different endings. CYOA comics allow students to make good and bad decisions, and then see the consequences those decisions.



Comic-BEE software streamlines the process of creating educational, branching comic stories.

Approach

Implementation

- Program offered to middle school students at a community center, as 3-week after-school and summer programs.
- Learning, engagement, and interest in cyber careers will be measured.
- •Students will explore cyber role models and research cyber topics online.

Learning with Comic-BEE

• Students learn about different cyber career roles by exploring branching comic about a cyber crime investigation created by experts.

• Students explore their understanding of cyber by creating their own comics, guided by trained instructors.

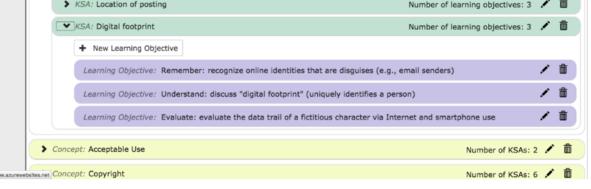
Plan Lesson Instructors help students to brainstorm reallife scenarios

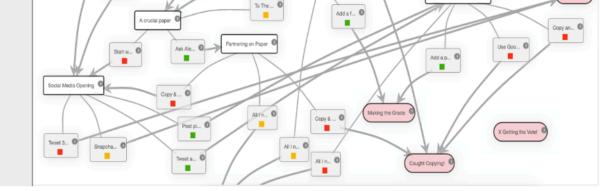
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Plan lesson	Lesson Plan Help	Save								Plan lesson	Scenarios			Com
Write script	Topic Audience						Write script	Learning	hemonizer	орру				
Layout storyboard	Concepts	Concepts Real life so	centarios			Expand All	▲ Collaps	0 AII		Layout	Objectives	Cheating and		Che
Create final comic	Develop 3-5 concepts to be addressed in the branching story; the technical Knowledge, Skills, and the specific learning objectives of the KSAs							e All		Create final comic	technology: Remember	technology: Analyze	und	
	Concept: Illegal use of computers					Number of KS	5As: 6 🖍	Ô				Title & Characters	Center on Start	Ţ,
	Concept: Information posted online is permanent					Number of KS	5As: 3 🖍	Û			Emma for Student Council	VP Fill ou		×
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Write Script Pairs of students create scenes with multiple choices and

Creating branching, graphic comics with Comic-BEE

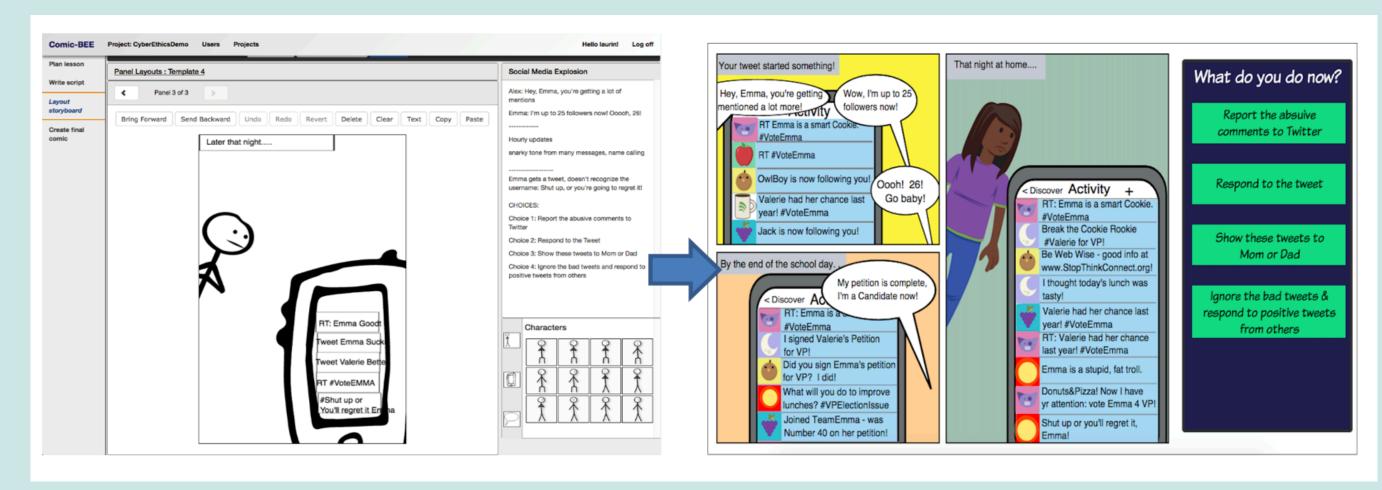
related to the learning objectives





connect them in multiple story lines

Storyboard Students decide how to depict their scenes using characters, dialog, and text within the panel templates



Final Comic Students replace stick figures and shapes with final artwork selected from a gallery of characters and objects

Interested in meeting the PIs? Attach post-it note below!



National Science Foundation WHERE DISCOVERIES BEGIN

NSF Secure and Trustworthy Cyberspace Inaugural Principal Investigator Meeting

Nov. 27 -29th 2012 National Harbor, MD



