Intersection of research and practice: Using software-development processes to develop a real-world cybersecurity game for tweens with a non-academic partner

Sana Maqsood, Ph.D.
Post-doctoral researcher
Carleton University
CHILDREN’S USE OF DIGITAL MEDIA

- 75% of 8-16 year olds use social media.
- 60% of 8-12 year olds have experienced some form of online risk.
9:32 am
Josie’s at a field trip to the Royal Botanical Gardens.

What should Josie do?
- Message Sofia or talk to her to ask if it’s OK to post the photo.
- Tag Sofia so that she can see it right away and tell Josie if she doesn’t like it.
- Limit who can see the photo by posting it with privacy settings set to Friends.

Josie got lots of great photos at the butterfly show. This one she got of Sofia is really funny, but she’s not sure if Sofia would want everyone to see it. What should she do?
INTERDICIPLINARY TEAM

Core team: 8 members

TURBULENT
Project manager
Technical team lead
Developers

MEDIASMARTS
President
Project managers
Technical advisor
Teachers (x 2)

CARLETON
Sana (Developer)
Christine (Designer)
Sonia (Supervisor)

PARTNERS
Translator
QA lead
Voice actor

[Collaborative] [Advisory] [Collaborative]
DESIGN PROCESS

1. Evaluate existing quiz
2. Create visual design
3. Evaluate visual design
4. Develop medium fidelity prototype
5. Evaluate medium fidelity prototype
6. Implement game in HTML5
7. Evaluate game with children
8. Use feedback to improve game
9. Evaluate game with teachers
10. Use feedback to improve game
CREATING GAME CONCEPT
EVALUATION WITH CHILDREN

Session 1 (60 minutes)
- Pre-test: Demographics and knowledge questionnaire
- Game (3 topics)
- Post-test: Usability and knowledge questionnaire

Session 2 (15 minutes)
- One-week-test: Knowledge questionnaire
MODULAR IMPLEMENTATION
RUNTIME SCENARIO GENERATION

HTML

```
<svg id="d4-scl">
  <image src="/images/d4/scl-1.png" />
  <image src="/images/d4/scl-2.png" />
  <image src="/images/d4/scl-3.png" />
</svg>
```

GRAPHICS

- d4-sc1-1-eng.svg
- d4-sc1-2-eng.svg
- d4-sc1-3-eng.svg
- d4-sc2-1-eng.svg
- d4-sc2-2-eng.svg

JSON DATA

```
"d4-sc1" : {
  "Day": 4,
  "Scenario": 1,
  "English title": "On a field trip",
  "French title": "En sortie éducative",
  "English time": "9:32",
  "French time": "9 h 32",
  "English description": "Josie's at a field",
  "French description": "Josée est en sortie."
}
```

AUDIO

- d4-sc1-1-fra.mp3
- d4-sc1-2-fra.mp3
- d4-sc1-3-eng.mp3

1. loadHTML()
2. showImage()
3. loadText()
4. playAudio()
October 16, Day 3: PRIVACY

8:45 am

On his way to school Jo sees a hero taking off. Lucky he has his cell phone handy!

GRAPHIC: Jo’s phone. There is a photo of a hero taking off from a pond with the handle of Jo’s bike in the foreground (Jo took the photo while he was riding his bike).

Buble text: Jo wants to show his friends the great photo he took, but he knows his parents will get mad if they see that he was using his phone while riding his bike. What should he do?

What should Jo do?
1) Show the photo to his friends on his phone.
2) Use privacy settings when he posts the photo so that only his friends can see it.
3) Post the photo using a “disappearing photo” app.

Consequences for: Show the photo to his friends on his phone (2/2 points)

Messages in Jo’s social media feed:

- You messaged Matt: Sorry, my mom and dad would kill me if they knew I’d taken it from my bike!
- Matt messaged you: Hey man, thanks for showing me that pic. Can U send me a copy to show my Dad, he’s crazy into biking!

Feedback text:

How did Jo do?

Good thinking! Because Jo kept it offline, his parents didn’t find out about the picture.

1. Transforming word scripts into .tsv

2. Enabling clients to edit .tsv
WORKING WITH A NON-ACADEMIC PARTNER

1. Coordinate diverging goals

2. Use modular approach to future-proof designs and facilitate evolving requirements

3. For games, balance learning and entertainment requirements
Thank you.

Email: sana.maqsood@carleton.ca

Web: http://sanamaqsood.weebly.com