# **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

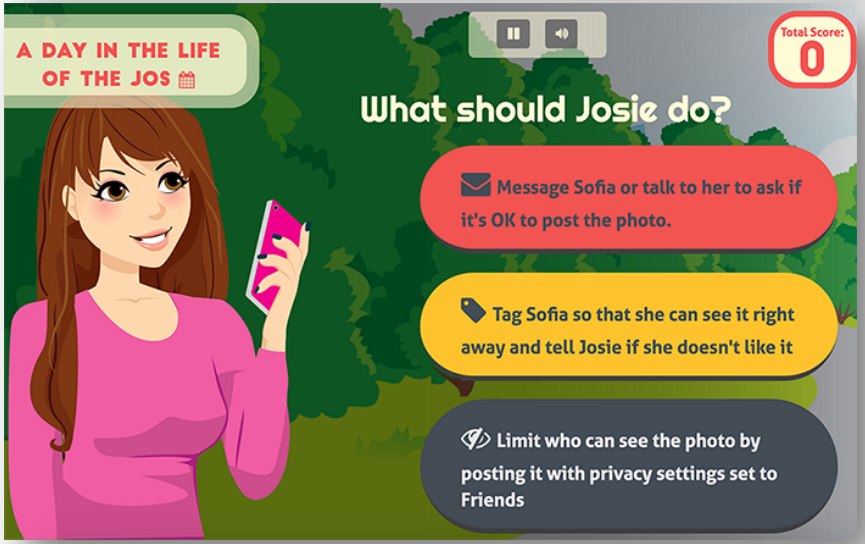
# CHILDREN'S USE OF DIGITAL MEDIA

- 75% of 8-16 year olds use social media.
- 60% of 8-12 year olds have experienced some form of online risk

A DAY IN THE LIFE OF THE JOS
Total Score: 3
JO
JOSIE
October
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

A DAY IN THE LIFE OF THE JOS
Total Score: 0
9:32 am
Josie's at a field trip to the Royal Botanical Gardens...

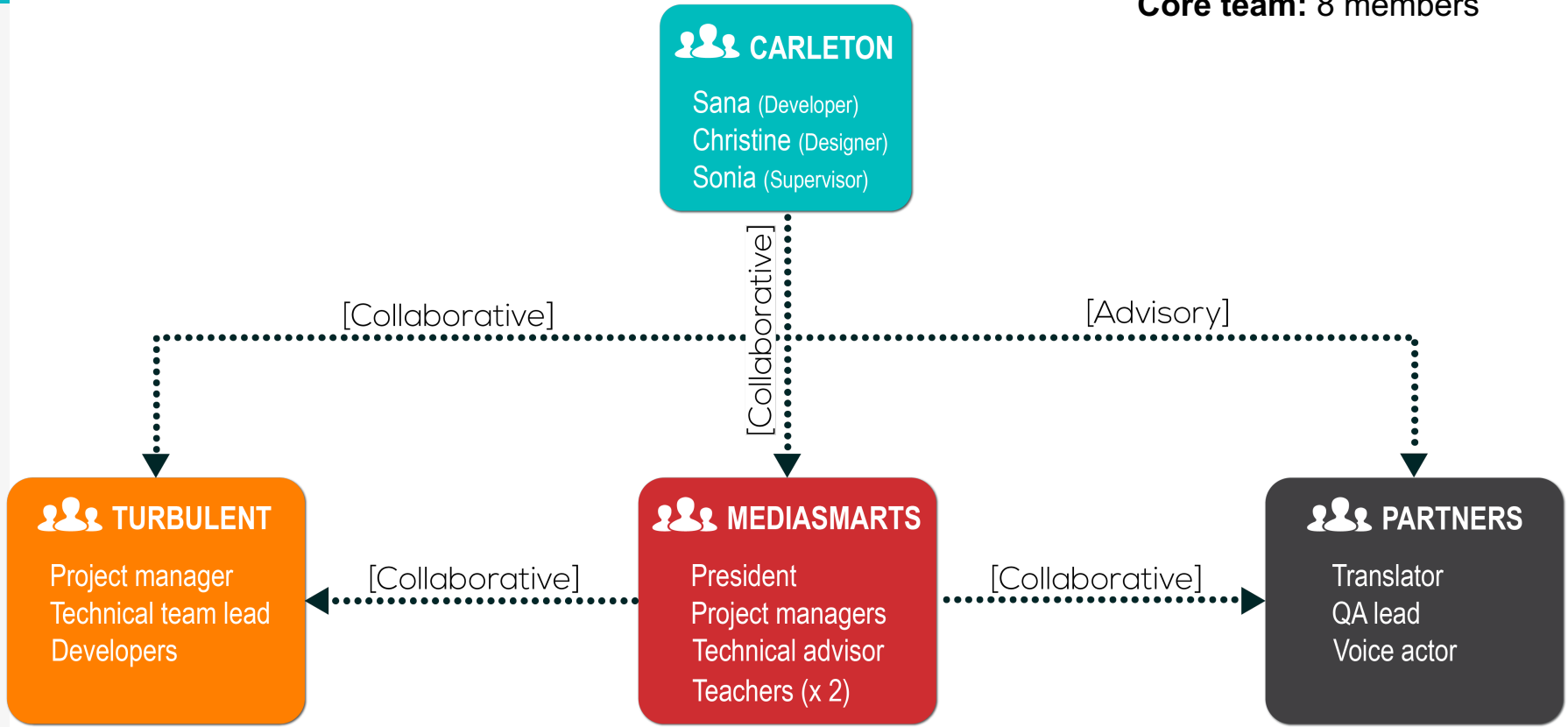
A DAY IN THE LIFE OF THE JOS
Total Score: 0
Josie got lots of great photos at the butterfly show. This one she got of Sofia is really funny, but she's not sure if Sofia would want everyone to see it.
What should she do?
SocialMedia
Josie's page
Cancel
Post
Write a comment here...


A DAY IN THE LIFE OF THE JOS
Total Score: 0
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

A DAY IN THE LIFE OF THE JOS
Total Score: 0
News Feed
Jo's Page
Josie's Page
Brian commented on your photo. LOL!
Jay commented on your photo Too late it was tagged with ur name so all ur friends saw it
Sofia commented on your photo. Hey Josie take that photo down PLZ! :(
Cindy commented on your photo. Hey Josie did u ask Sofia before posting this?

# INTERDICIPLINARY TEAM

**Core team:** 8 members



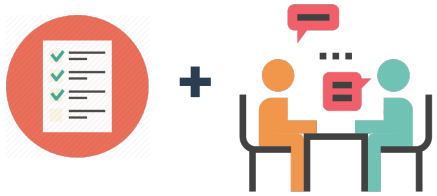
# DESIGN PROCESS

Media Smarts
CANADA'S CENTRE FOR DIGITAL AND MEDIA LITERACY

# CREATING GAME CONCEPT

# EVALUATION WITH CHILDREN

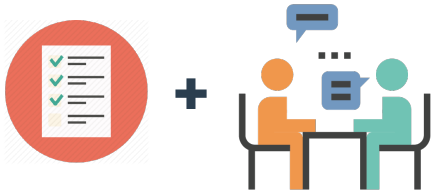
## Session 1 (60 minutes)



Pre-test

Demographics and knowledge questionnaire

Game (3 topics)



Post-test

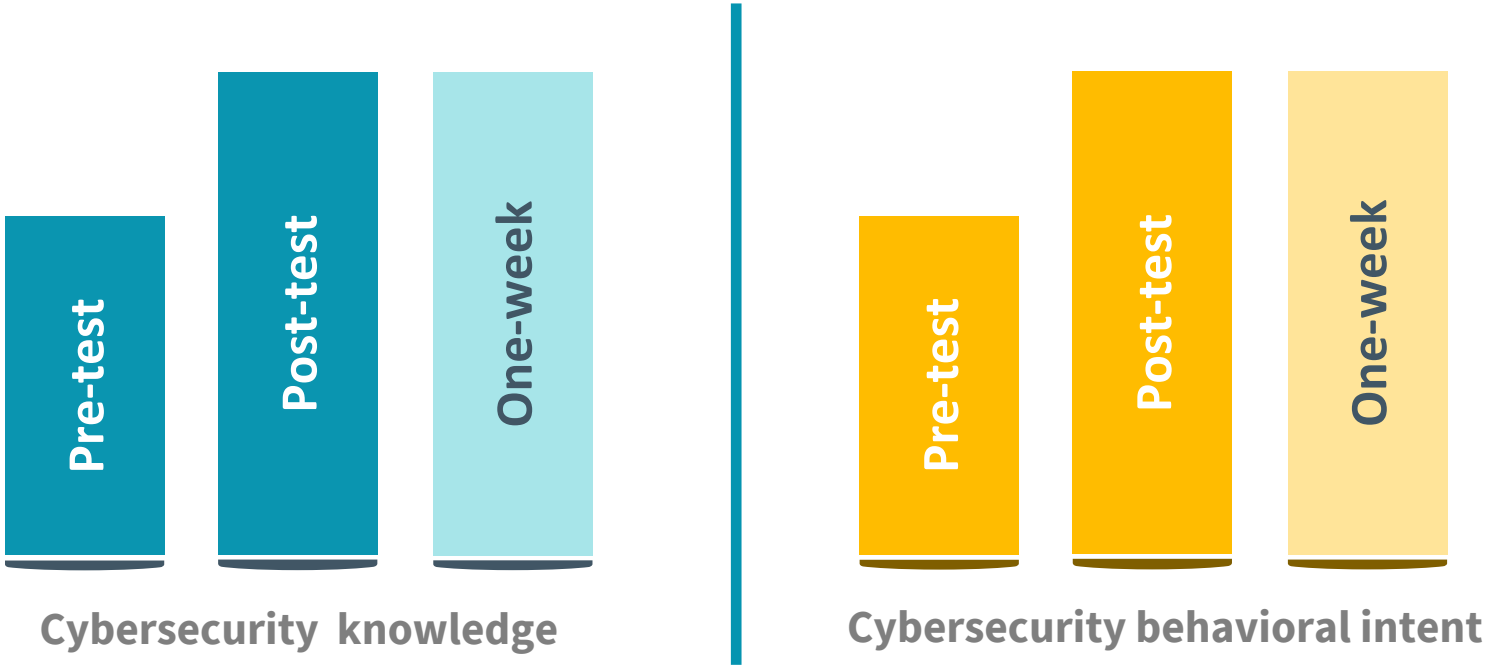
Usability and knowledge questionnaire

## Session 2 (15 minutes)

One-week-test

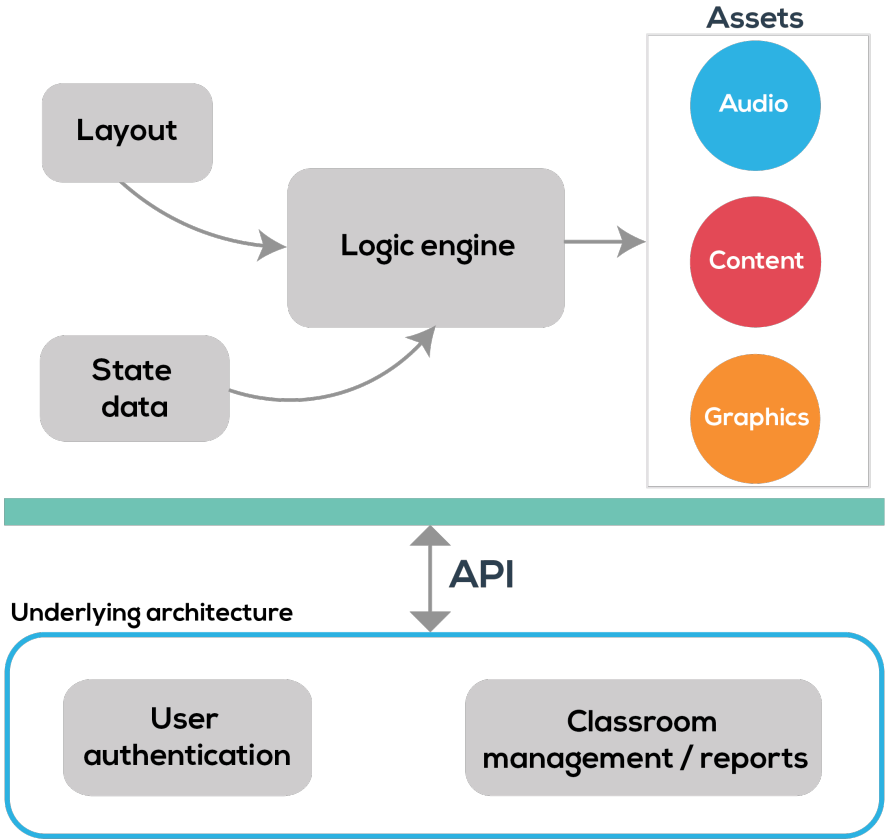
Knowledge questionnaire

# KEY FINDINGS – EFFECTIVENESS




Sana Maqsood, Christine Mekhail, and Sonia Chiasson. A Day in the Life of JOs: A Web based Game to Increase Children's Digital Literacy. In Interaction Design and Children (IDC), 2018.

# MODULAR IMPLEMENTATION



# RUNTIME SCENARIO GENERATION

## HTML

```
<div id="d4-sc1">
    <div class="stp1 hidden">
        <img src="images/d4/sc1-1.svg" />
    </div>
    <div class="stp2 hidden fra">
        <img src="images/d4/sc1-2.svg" />
    </div>
    <div class="stp3 hidden">
        <img src="images/d4/sc1-3.svg" />
    </div>
</div>
```

## AUDIO

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

1 loadHTML()

4 playAudio()

## 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

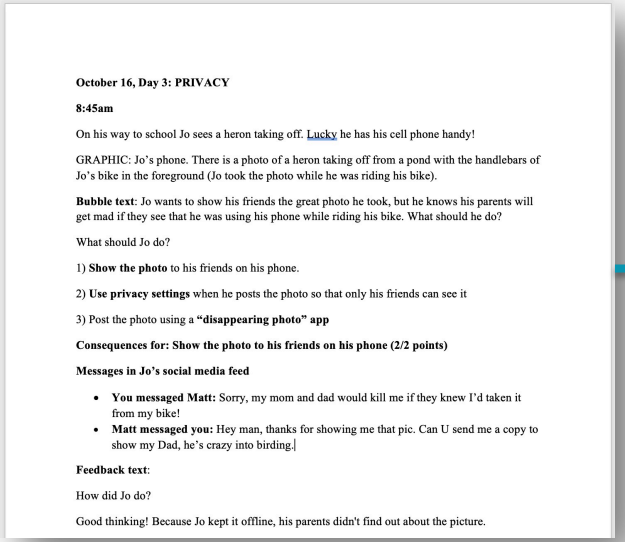
2 showImage()

3 loadText()

## 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.
    }
```

# MANAGING TEXT



**October 16, Day 3: PRIVACY**

**8:45am**

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

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

**Bubble 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 birding.

**Feedback text**:

How did Jo do?

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

| day | scenario | feedNum | choiceNum | author | titleEng | titleFra | type | descriptionEng | descriptionFra | videoDescEng | videoDescFra |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 0 | sofia | Sofia messaged you.. | Sofia vous a envoyé un | text | OMG!! Did you see how Cir | As-tu vu comment Laurie regardait Félix ce matin en music | | |
| 1 | 1 | 2 | 1 | josie | You messaged Sofia. | Vous avez envoyé un m | text | R U sure Cindy wants peop | Es-tu certaine que Laurie veut que tim le sache? Elle ne se | | |
| 1 | 1 | 3 | 1 | sofia | Sofia messaged you.. | Sofia vous a envoyé un | text | OMG I didn't think of that! I | J'avais vrm pas pensé à ça! J'en ai parlé à Laurie et elle ét | | |
| 1 | 1 | 4 | 2 | josie | You messaged Jo. | Vous avez envoyé un m | text | Did U hear about Cindy anc | Savais-tu pour Laurie et Félix? Parles-en pas à personne. | | |
| 1 | 1 | 5 | 2 | jo | You posted on Brian's | Vous avez publié sur la | text | Hey Brian way 2 go! | Félicitations Félix! | | |
| 1 | 1 | 6 | 2 | brian | Brian commented on t | Félix a fait un comment | text | ??? | ??? | | |
| 1 | 1 | 7 | 2 | jo | You replied to Brian's | Vous avez répondu au | text | If U feel eyes on UR back,.. | Si tu sens des yeux dans ton dos - c pcq qqun te regarde | | |
| 1 | 1 | 8 | 2 | brian | Brian replied to your c | Félix a répondu à votre | text | Who sits behind me...Cindy | Qui est assis derrière moi... Laurie? | | |
| 1 | 1 | 9 | 2 | jo | You replied to Brian's | Vous avez répondu au | text | Aw man...don't tell Cindy or | Elle mais.... dis pas à Laurie ou à Josée que je te l'ai dit... | | |
| 1 | 1 | 10 | 3 | josie | You posted on Cindy's | Vous avez publié sur la | text | Brian's perfect for you! Grea | Félix est parfait pour toi! Contente d'apprendre que L <3 F | | |
| 1 | 1 | 11 | 3 | cindy | Cindy commented on | Laurie a fait un comme | text | Mind UR own business JO( | Mêle-toi de tes affaires JOSÉE! Félix a lu ton msg et tous | | |
| 1 | 1 | 12 | 3 | cindy | Cindy has unfriended | Laurie vous a désamici | text | | | | |
| 1 | 2 | 1 | 0 | jay | Jay posted a video. | Léo a publié une vidéo. | video-photo | Check out this video of Ben | Regardez cette vidéo de | d1-sc2-sm1 | |
| 1 | 2 | 2 | 0 | kooldude | kooldude commented | kooldude a fait un com | text | LOL! | LOL | | |
| 1 | 2 | 3 | 0 | grey51 | Grey51 commented o | Grey51 a fait un comm | text | What a luzr. | Pas fort | | |
| 1 | 2 | 4 | 0 | rob | Rob commented on J | Rob a fait un comment | text | I'm sharing this with all my f | Je partage avec tous mes amis! | | |
| 1 | 2 | 5 | 1 | jo | You commented on J | Vous avez fait un comm | text | Sorry Ben but this is hilariou | J'm'excuse Ben, mais c'est hilarant! | | |
| 1 | 2 | 6 | 1 | ben | Ben replied to your co | Ben a répondu à votre | video-photo | Hey JO since U like funny v | Elle JO! T'aimes ça regd | d1-sc2-sm2 | |
| 1 | 2 | 7 | 1 | jay | Jay commented on hi | Léo a fait un comment | text | LOL. | LOL | | |
| 1 | 2 | 8 | 1 | ben | Ben replied to Jay's o | Ben a répondu au com | video-photo | Don't laugh JAY, UR next. | Ris pas LÉO, C à ton tou | d1-sc2-sm3 | |
| 1 | 2 | 9 | 2 | jo | You reported Jay's vic | Vous avez signalé la vic | text | | | | |
| 1 | 2 | 10 | 2 | siteOwner | The site owner messa | Le propriétaire du site v | text | Thank you for your report. V | Merci pour ce signalement. Nous avons examiné la vidéo | | |
| 1 | 2 | 11 | 2 | jo | You sent Ben a private | Vous avez envoyé un m | text | Hey man JAY shouldn't hav | Hé, Léo n'aurait pas dû te faire ça. | | |

**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