



# Replication: Effects of Media on the Mental Models of Technical Users

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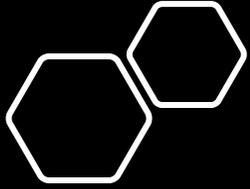
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Sana Maqsood, Sonia Chiasson

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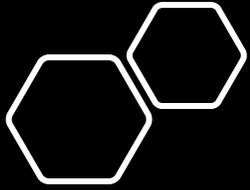
# Introduction

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Those in a technical position play a large role in online privacy and security

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For this reason, technical users need accurate mental models of online security



# The role of media in online security

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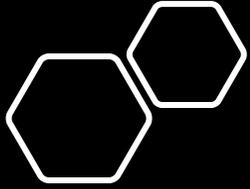
Cybersecurity in media is  
dramatic and fast-paced

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Media may affect viewers' mental  
models

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**Fulton et al.:** The Effect of  
Entertainment Media on Mental  
Models of Computer  
Security



# Research question

Fulton's study participants often turned to fictional media and its tropes to fill gaps in their technical knowledge

Given that Fulton's study did not control for technical expertise, we replicate this study with users who have a technical background



# Study protocol



## Participants

23 participants

12M | 11F

\$15 compensation



## Study session

60 minutes

Interview

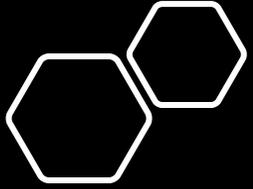
Questionnaire\*



## Data analysis

Inductive thematic analysis

\* Minor additions made to original questionnaire to query technical background



# Video clips

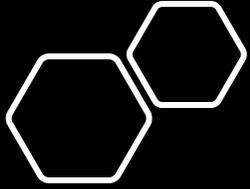
Hacking

Encryption

Phishing

Password usage

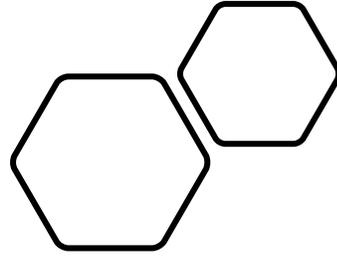
Defence



# Results

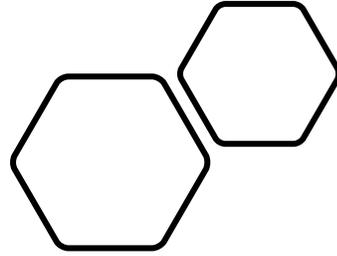
- We will focus on the portion of the interview related to these video clips:
  - What makes a scene realistic/unrealistic
  - Focus on overlap with the original study
- Differences will be identified with **orange**

# Unplugging a computer



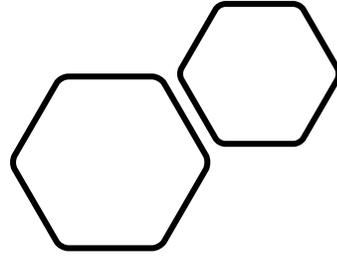
1. A good way of stopping hacks
2. Ineffective when the network is compromised

# Detectability



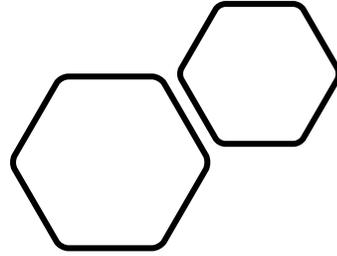
- Malware is obvious
- Hackers are stealthy

# Encryption



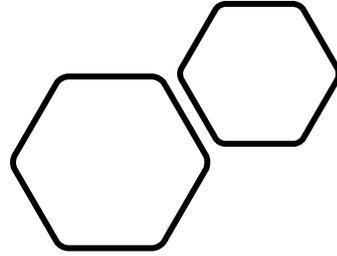
- Encryption is secure, effective

# Targets



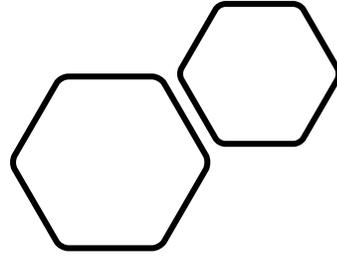
- Specific individuals, organisations, and business – especially if they have poor security practices
- **Some random targets**

# Phishing



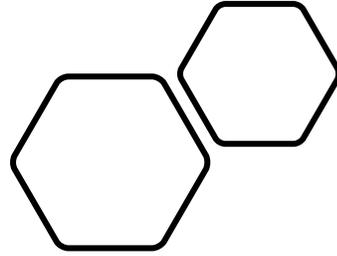
- Users should be careful
- Victims of importance 'should know better'

Speed,  
complexity

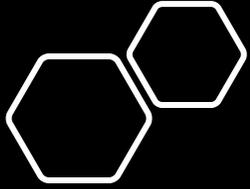


- Too quick or easy is unrealistic
- Insider threats and lax security measures make this more likely
- Multiple layers of defence expected

# Evaluating realism

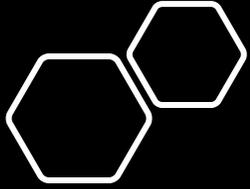


- Technical knowledge, personal experience, context, and cinematic cues



In summary...

- Technical participants had a more nuanced understanding of cybersecurity concepts
- Gaps and inconsistencies in mental models exist regardless



## Recommendations



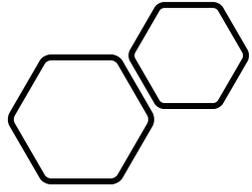
Holistic cybersecurity  
curriculums



Fact-checking databases



Media as a tool



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