I Think They’re Trying to Tell Me Something
Advice Sources and Selection for Digital Security

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Security Advice

**U.S. CERT**
~30,000 words
60+ topics

**McAfee**
~40,000 words
49 topics

**NCPC**
~12,000 words
30 topics
Research Questions

1. Where do users get advice?

2. How do they evaluate this advice?

3. Do users with different backgrounds make different choices?
Semi-Structured Interview Study

- Conduct interviews of 25 participants
  - Recruit
    - Send list to Craigslist, emails to companies, flyering
  - Interview
Interview Details

Security Domains

Digital
- Authentication/Passwords
- Anti-Virus
- Online Banking/Shopping
- Two-Factor Authentication

Physical
- Home
- Transit
- Walking Alone at Night

Questions

Information Source
Decision Making
Strategies Not Used
Negative Experiences
General Advice Seeking & Eval.
Semi-Structured Interview Study

- Recruit
  - Conduct interviews of 25 participants
  - Craigslist, emails to companies, flyering

- Interview

- Analyze
  - Rigorous text analysis of data
Qualitative Analysis

**Step 1**
Transcribe Interviews

**Step 2**
Develop Codebook

**Step 3**
Coding & Intercoder Agreement

**Step 4**
Code Analysis

Word-by-word transcription
Develop codes by reviewing transcripts
Independently code transcripts
Calculate agreement metric & reach full agreement
Analyze codes to identify and develop main themes
Participant Demographics

- 25 Participants
- Slightly more female than D.C. area
- Educationally representative of D.C.
- Wealthier than D.C.
- Racially representative of D.C.
Selected Results

Advice Evaluation

Why did you choose to use or not use this security strategy?

Security Sensitivity

Do you hold a security clearance or work with HIPAA or FERPA data?

Negative Security Experience

Have you ever had a negative experience with this activity?
Participants’ evaluation of digital-security advice: their trust of the advice source

Evaluation of physical-security advice: their own assessment of the content
“With computer security, I’m securing myself from threats that I don’t even know anything about...

I know when somebody walks up with a gun that I should be worried.”
Participants rejected advice for containing **too much marketing** or threatening their privacy.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Num. Participants</th>
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<tbody>
<tr>
<td>Inconvenience</td>
<td>5</td>
</tr>
<tr>
<td>Privacy Threat</td>
<td>5</td>
</tr>
<tr>
<td>Lack of Risk</td>
<td>4</td>
</tr>
<tr>
<td>Too Much Marketing</td>
<td>4</td>
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</tbody>
</table>
“I don’t take any advice with a price tag attached...

I did have my identity stolen one time but I was able to fix it...

I’m not one of those people who signs up for identity theft protection or something like that.”
“I think I do have that two factor authentication capacity, but I’ve always declined...

Based on what I know about Gmail, it just seemed like giving up too much information to Google.”
Selected Results

Advice Evaluation
Why did you choose to use or not use this security strategy?

Security Sensitivity
Do you hold a security clearance or work with HIPAA or FERPA data?

Negative Security Experience
Have you ever had a negative experience with this activity?
Security sensitive participants differ from general participants in behavior, source & beliefs

**Do you use 2FA?**

- **Yes**
  - General Participants: 2
  - Sec. Sens. Participants: 8
- **No**
  - General Participants: 8
  - Sec. Sens. Participants: 7
Security sensitive participants differ from general participants in behavior, source & beliefs.

Workplace is source of security advice?

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<thead>
<tr>
<th></th>
<th>General Participants</th>
<th>Sec. Sens. Participants</th>
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<tbody>
<tr>
<td>Yes</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>2</td>
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</tbody>
</table>
Security sensitive participants differ from general participants in behavior, source & beliefs.

Which is more useful?

<table>
<thead>
<tr>
<th></th>
<th>General Participants</th>
<th>Sec. Sens. Participants</th>
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<tbody>
<tr>
<td>Digital Advice</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Physical Advice</td>
<td>8</td>
<td>7</td>
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</table>
Selected Results

Advice Evaluation
Why did you choose to use or not use this security strategy?

Security Sensitivity
Do you hold a security clearance or work with HIPAA or FERPA data?

Negative Security Experience
Have you ever had a negative experience with this activity?
Participants noted the **impact of negative-security events** including events portrayed in **fictional narratives like T.V. shows** on altering their security behavior.
“I put a password on my WiFi network after watching a TV show.

It showed people going by houses and WiFi snooping

... shows like that, they make you think.”
Research & Design Recommendations

- Explore effect of security sensitivity
- Reassure users about privacy
- Distribute advice via pre-existing channels
- Avoid the perception of marketing
- Develop vignettes to simulate negative security experiences
Summary

Research Questions
Where do users get advice?
Why do they take it?
How can we improve it?

Methods
Semi-structured interview w/ 25 participants

Selected Results
Trust of source key metric for digital security
Advice rejection: marketing & privacy concern
Security-sensitive participants differ
Fictional narratives can alter security behavior

Questions?
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