Security Awareness and Secure Behavior are NOT the Same Thing

Traditional awareness programs fail to account for the knowledge-intention-behavior gap.
About Perry

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• Former Gartner Analyst leading research and advisory services to CISOs, Security Leaders, and security vendors around the world

• Led security initiatives at Fidelity Information Services, Alltel Telecommunications, and Wal-Mart Stores

• Lover of all things:
  • Security
  • Psychology
  • Behavioral Economics
  • Communication Theory
  • Magic, misdirection, and influence
Agenda

1. Why behavior?
2. How can you model and design secure behaviors to help shape good security hygiene?
3. How can you debug behavior?
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There are **Three Realities** of Security Awareness

1. Just because I’m **aware** doesn’t mean that I **care**.
2. If you try to work **against** human nature, you will **fail**.
3. What your employees **do** is way more important than what they **know**.
Thinking, Fast & Slow (Daniel Kahneman)

**System 1 (Fast Thinking)**
- Continuously scans our environment.
- Fast but error-prone
- Works automatically & effortlessly via shortcuts, impulses and intuition.

**System 2 (Slow Thinking)**
- Used for specific problems, only if necessary
- Takes effort to analyze, reason, solve complex problems, exercise self-control
- Slow but reliable

System 1 Thinking Example

Which line is longest?
System 2 Thinking Example

Solve for \( x \):

\[ 532 \div 86 = x \]
Your awareness program should not focus only on information delivery

Ask yourself:
Do you care more about what your people know or what they do?
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Why Is Getting the Desired Behaviors So Difficult?

10:59 AM - 31 Mar 2011
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**Behavior** happens when three things come together at the same time:

- **Motivation**, **Ability**, and a **Prompt** to do the behavior...

http://behaviormodel.org
1. What behaviors, if adopted, would have the most security benefit for our organization?

2. Is this a group of behaviors, or is this a single behavior?

3. Is this a behavior that we have the appetite to take-on right now?
## Designing Behavior (A Non-Security Example)

<table>
<thead>
<tr>
<th>Fogg Behavior Model Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behavior (B):</strong> What specific behavior do we want someone to do?</td>
<td>Drink a glass of water</td>
</tr>
</tbody>
</table>
| **Motivation (M):** What types of things might motivate someone to perform the B? | - They could be thirsty  
- The might want social acceptance (everyone else is doing it)  
- They might want to avoid offending the person offering them water  
- They believe that there are positive health benefits associated with staying hydrated  
- Etc. |
| **Ability (A):** What types of things must someone already be able to do or know to successfully perform the B? | - A glass of water is available to the person or can be obtained with little effort  
- The person’s mouth is not taped shut  
- The person is not asleep or otherwise incapacitated  
- Etc... |
| **Prompts (P):** What types of things can cue the B? | - The person noticing that they are thirsty  
- Someone offers the person a glass of water  
- The person receives a prompt from a health-app reminding them to drink  
- Etc. |
Thoughts on Designing for Each Element

Prompts

Ability

Motivation
Learn from Marketers and Storytellers to Influence Motivation
Nudge your audience toward the behavior

A nudge, as we will use the term, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not.

Nudge them in the right direction

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Your password change portal is a great place to insert a nudge:
• Strength Meters
• Videos on how to create & remember strong passwords
• Elective LMS modules
• etc.
Design Power Prompts Where Possible

A *power prompt* is a prompt that the user receives that *also* contains something intended to increase motivation, make the behavior *easier*, or both.
## Designing Behavior (A Security Example)

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<td><strong>Behavior(B): What specific behavior do we want someone to do?</strong></td>
<td>Choose a good password</td>
</tr>
</tbody>
</table>
| **Motivation(M): What types of things might motivate someone to perform the B?** | • They understand and appreciate the value of choosing a good password  
• They feel empowered by choosing a good password  
• They feel more secure by choosing a good password  
• They are afraid that their current password has been (or might be) compromised due to its simplicity  
• They feel pressure to create a better password because the organization is monitoring password strength |
| **Ability(A): What types of things must someone already be able to do or know to successfully perform the B?** | • The person has the required knowledge of how to construct a password that is both strong and memorable  
• The person has tools that will help them construct a password that is both strong and memorable  
• The person has tools that will choose a strong password and remember that password for them |
| **Prompts(P): What types of things can cue the B?** | • The person just feels like changing their password  
• The person receives notification that it is time to change his/her password  
• The person is locked-out of his/her account because they forgot their current password  
• The organization issues a forced password reset  
• The person receives a security tip that has advice on how to create and remember a good password  
• The person forgot their current password and is about to perform a password reset  
• The person receives a notification that his/her account was breached, and hackers may have accessed the password |
Plan like a Marketer. Test like an Attacker.

Phishing / Automated Social Engineering Testing

Executive Message/Video

Department Manager Message

Security Town Hall

LMS Modules

LMS Modules

LMS Modules

Digital Signage – Theme 1

Digital Signage – Theme 2

Newsletter

Newsletter

Newsletter

Newsletter
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Account for Behavioral Segments

Fogg Behavior Model

- **High Motivation**: Prompts succeed here
- **Low Motivation**: Prompts fail here

**B=MAP** at the same moment

- **Group 1**: Hard to Do, Design primarily for Groups 1 and 2
- **Group 2**: Ability
- **Group 3**: Easy to Do
- **Group 4**:  

Graphic based on Fogg Behavior Model. Adapted with permission. ©2019 BJ Fogg
Debugging Problem Behaviors

Prompt:
- Are we prompting for the behavior? If not, prompt for the behavior.
- If so, are the prompts designed effectively?
- Have the prompts become ‘invisible’ through overuse?
- Are the prompts occurring through an optimal channel?
- Can we create a power prompt?

Ability:
- Is the behavior still too hard?
- Is there any way to make the behavior easier? Perhaps through tools, additional training, etc.?
- Is this behavior even something most humans can do consistently?
- Is there a time that the behavior feels easier or more achievable than other times?
- Can we embed something within the prompt that will reduce the real (or perceived) time, complexity, or effort required to do the behavior?

Motivation:
- What factors might enhance or erode emotion at the time of behavior?
- Are their times when someone may feel more naturally motivated to do the behavior?
- Is there a way to make the behavior feel more meaningful?
- Are their social, environmental, or other factors that can be leveraged to provide intrinsic or extrinsic motivation?
- Can we place a motivational boost within the prompt?
Designing for the Larger Issue

thinking about passwords
“Do you care more about what your employees know or what they do?”
Thank You