# Reframing Usable Privacy + Security to Design for "Cyber Health"

**Cori Faklaris** | Aug.13, 2018

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**Carnegie Mellon University**
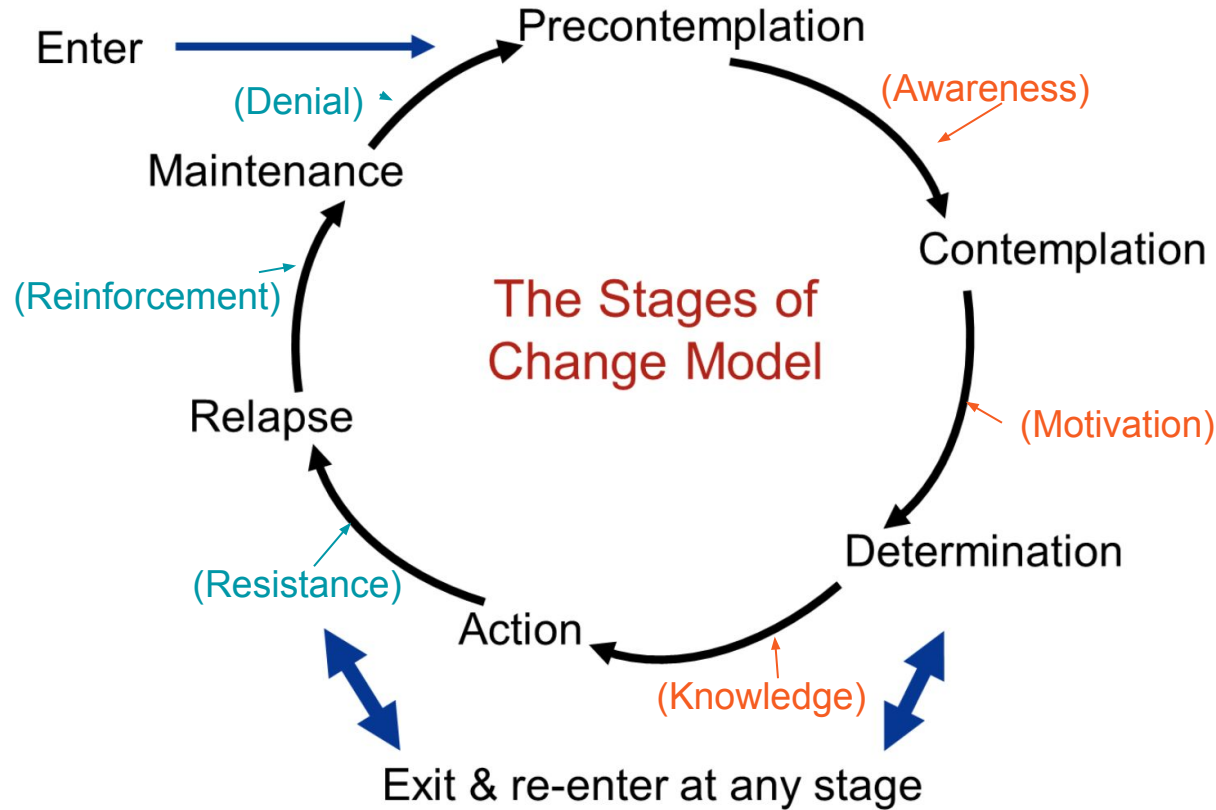**Human-Computer Interaction Institute**
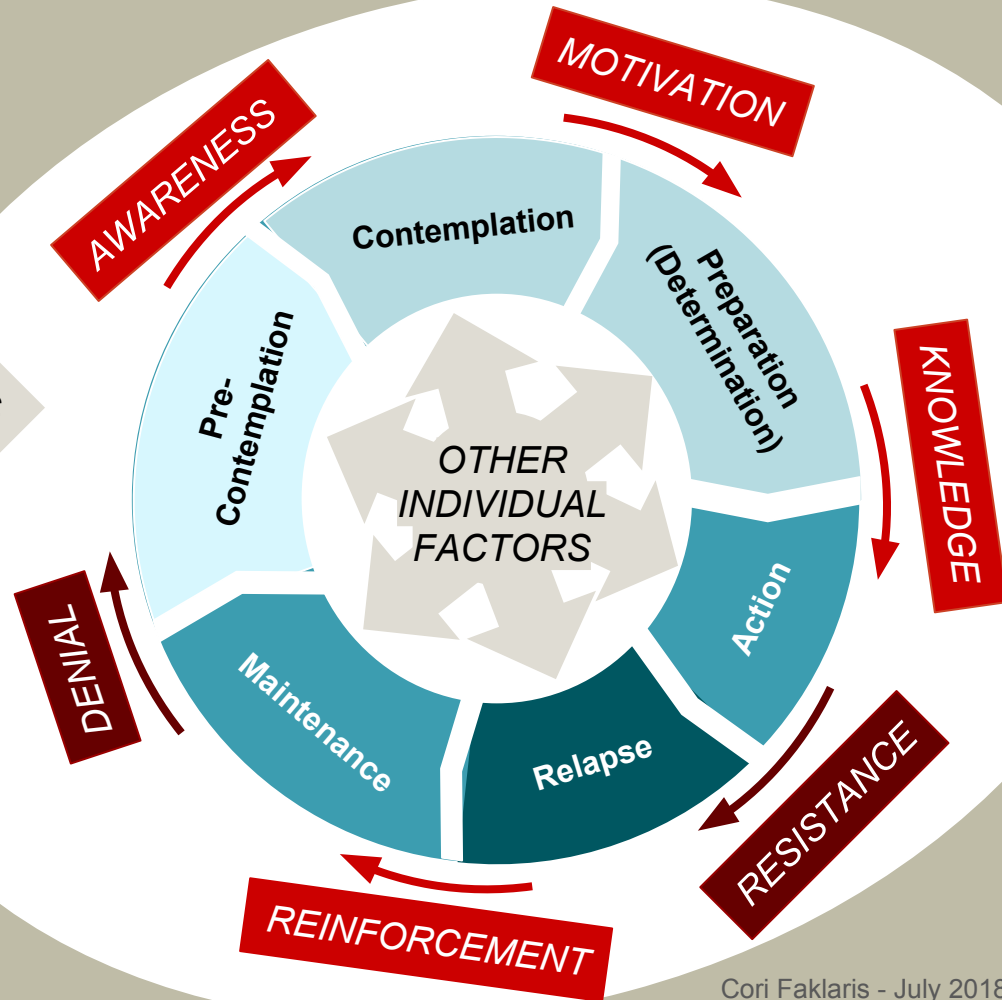
Social contagion

Herd immunity

Viral hoaxes

The Stages of Change Model

Enter → Precontemplation
(Denial)
(Awareness)
Maintenance
Contemplation
(Reinforcement)
(Motivation)
Relapse
Determination
(Resistance)
Action
(Knowledge)
Exit & re-enter at any stage

SELF-EFFICACY

SITUATIONAL FACTORS

EXTERNAL FACTORS
-Larger system environment
-Global internet infrastructure

AWARENESS

MOTIVATION

EXTERNAL FACTORS
-Regulations
-Government
-Society
-Culture

KNOWLEDGE

SOCIAL FACTORS

TEMPTATION

RESISTANCE

REINFORCEMENT

DENIAL

Contemplation

Preparation (Determination)

Pre-Contemplation

OTHER INDIVIDUAL FACTORS

Action

Maintenance

Relapse

# Stage 1: Precontemplation (or "Resistance to Change")

Get from this …

*"I don't need to use/have time to use/ these privacy and security practices."*

Create Awareness

… Using these:
- Feedback
- Education
- Reading materials
- Storytelling
- Media campaigns
- Empathy training

… To this ...

*"It may be a good idea to use these privacy and security practices."*

# Stages 2-3: Contemplation/Preparation ("Receptiveness")

Get from this …

*"I worry that I don't use these privacy and security practices."*

**Create Motivation**

… Using these:

- "Family interventions"
- Role playing
- Documentaries
- Imagery
- Value reflection and clarification

… To this ...

*"I will regret it if I do not start using these privacy and security practices."*

# **Stages 2-3:** Contemplation/Preparation ("Receptiveness")

Get from this …

*"I want to change/need to change my privacy and security practices."*

**Agency/Knowledge**

… Using these:
- Empowerment procedures + policies
- Public testimonials
- Providing choices among 2-3 alternatives
- Advocacy at the margins

… To this ...

*"I feel better for commiting to my chosen privacy and security practices."*

# Stages 4-5: Action + Maintenance ("Engagement")

**Get from this …**

*"I intend to use/am actively using/am committed to these privacy and security practices."*

**Reinforce Behavior**

… Using these:
- Rewards and punishments
- Controlling stimuli to nudge behaviors
- Environmental changes
- Groups and coaching

**… To this ...**

*"I ask for help with using/am successful with using/keep improving my use of privacy and security practices."*

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- Lens: Security as health
- Design model adapts TTM
- How to use the model

# Any questions?

You can find me at

- ○ Twitter: **@heycori** | Email: **heycori @cmu.edu**
- ○ Website: **http://corifaklaris.com**