

Designing Cyber-Spaces & Promoting Cyber-Cultures to Reduce SPEC-Inspired Hacktivism

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Proposed Interventions

We propose that two particularly promising interventions, capable of disrupting links between distrust antecedents and unauthorized online behaviors, include transparency (to diffuse distrust attributed to non-blameworthy bases), and accountability (to diffuse distrust attributed to blame-worthy antecedents).

Quotes to consider...

In the early days of Internet studies... there was great optimism about what this new communication technology could offer...—the ability to bridge vast differences, to connect diverse people together, to bring together the like-minded, and to do so quickly and relatively easy—seemed to promise a new means for people to hash through the tough problems facing communities, nation-states, and the globe...

(Stromer-Galley & Wichowski, 2011, p. 168, emphases added)

In April, the Los Angeles Times wrote that the Kosovo conflict was “turning cyberspace into an ethereal war zone...” ...Anthony Pratkanis observed, “What you’re seeing now is just the first round of what will become an important, highly sophisticated tool in the age-old tradition of wartime propaganda.... The war strategists should be worried about it, if they aren’t yet.”

(Denning, 2000, emphases added)

Relevant Theories

TRUST THEORIES

- Commonly mentioned antecedents of distrust include perceptions of malevolence, deceit, and incompetence—the opposite of factors promoting trust (McKnight & Choudhury 2006; McKnight et al. 2004).

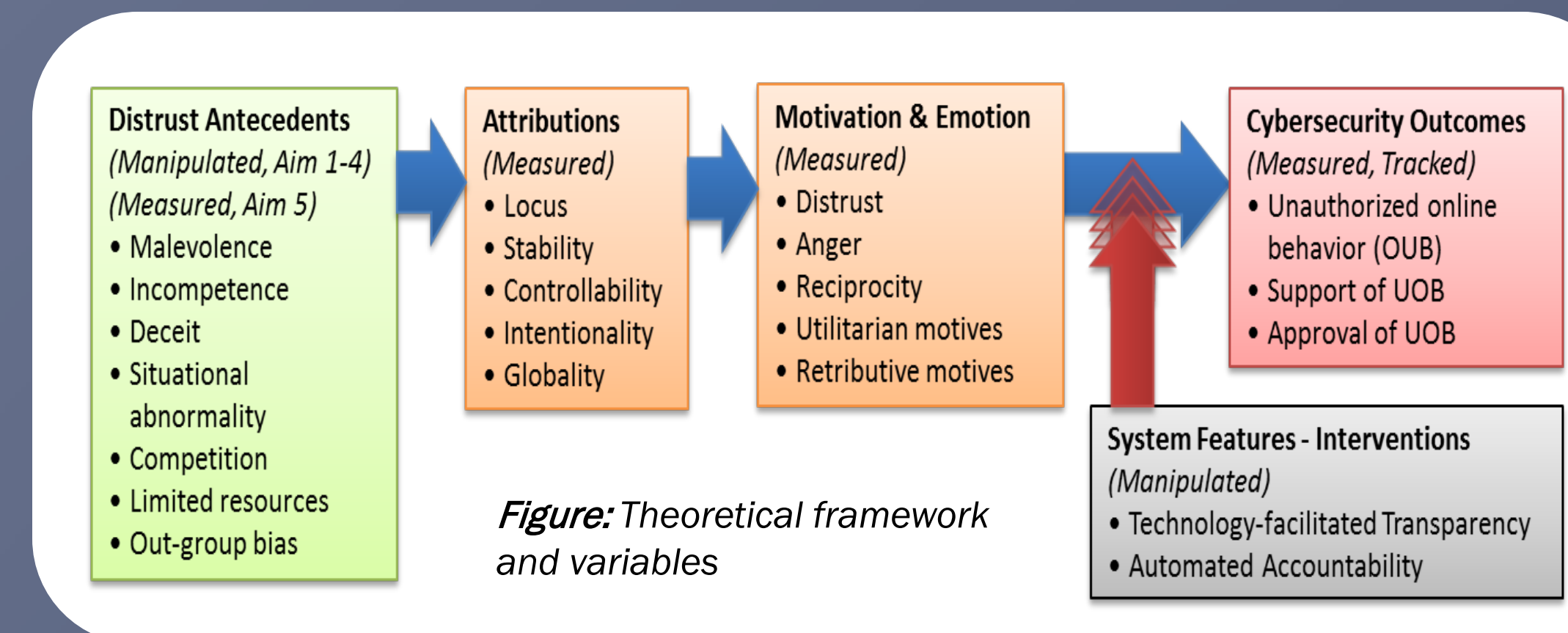
- However, there is evidence that distrust, being distinct from trust, has its own unique antecedents, including factors that result in suspicion and bias perceptions (Moody et al., 2010).

ATTRIBUTION THEORIES

- Attribution theory identifies dimensions by which persons tend to assign causality as they interpret the world around them, and links those attributions to motivations, emotions, and behaviors (Hareli & Weiner 2002; Weiner 1985, 2011).
- Internal and controllable attributions about perceived negative behaviors lead to anger and blame more so than, for example, internal but unintentionally caused behaviors such as incompetent behavior due to an internal uncontrollable lack of knowledge (Allred 2000)
- Other social emotions (e.g., anger and envy) may be related to different combinations of attributions, and different judgments and behavioral responses.

THEORIES OF RECIPROCITY

- Theories of reciprocity such as social exchange theory (Emerson 1976) posit that norms and exchange rules, such as reciprocity, guide our behaviors (Cropanzano & Mitchell 2005).
- When faced with blameworthy harmful behaviors, through both intuition and perhaps motivated reasoning, the majority of people prefer to reciprocate with retributive punishments that would give others “what they deserve” rather than utilitarian punishments which might simply remedy damage or prevent future harm from occurring (Carlsmith & Darley, 2008).



Technology-Facilitated Transparency

Transparency has been defined as the open sharing of relevant information (Akkermans et al 2004) and has been found to predict both trust and legitimacy (e.g., Lang & Hallman 2005; Nicolaou & McKnight, 2006). While a key feature of transparency is making information available, in today’s information age, too much information is often a problem. We hypothesize that effective transparency depends on the utility and relevance of the information provided, which will vary according to individual values. By helping people to identify and track information they trust versus do not trust, transparency can serve a utilitarian function of protecting people from untrustworthy information, and counteract the impacts of antecedents of distrust that evoke that utilitarian motive (e.g., incompetence).

Automated Accountability

The belief that one will be held accountable can increase mental effort and complexity of cognitive processing (e.g., Tetlock 1983a, 1983b). In addition, accountability may reduce the negative impacts of distrust by providing a sense of procedural justice through the identification and punishment of those judged as blameworthy, and by increasing the legitimacy of the regulating institutions (Tyler 2002).

What we know

- “Unauthorized online behavior” motivated by social, political, economic and cultural (SPEC) conflicts are currently increasing (Gandhi et al. 2011; Kizza 2010; Rounds & Pendgraft 2009).
- There are calls to involve the public in policy decisions in areas ranging from nanotechnology to genomics to public budgeting both as a means of reflecting democracy and to assure acceptable policy outcomes (Green & Guyer 2011; PytlikZillig & Tomkins 2011; Sargent 2011).
- Public engagements in SPEC issues often times result in polarization rather than consensus (e.g., Lawrence et al. 2010).
- Polarization can be especially frequent in online deliberation contexts (Sia et al 2002).
- There is a link between distrust and unauthorized online activities, as distrust of authority is an explicit part of a hacktivist (i.e., hacker activist) code of ethics (Levy 1994; Warren 2008).

What we want to know

Overarching Question:
Do the relationships between distrust and unauthorized online behaviors (or acceptance of such behaviors) depend on the specific bases of distrust, and require different remedies?

Research Questions:

- What are the relationships between different antecedents of distrust, mediating attributions and motives, and cyber-attack (unauthorized online) behaviors?
Working Hypothesis: Different antecedents will predict different attributions/motivations, and thus different behaviors.
- What technological interventions can moderate the relationships found in question 1?
Working Hypothesis: Different interventions will be needed to impact different bases of distrust.

Proposed Study

SCENARIO CONTEXT

Imagine you are a farmer living in a watershed in the panhandle of Nebraska. You have the capability to irrigate your crops. However, because irrigation is costly, you try to use it sparingly and strategically. Therefore, water availability is of great concern to you. Water availability impacts a huge number of your choices, including your choice of crops to plant, when to plant, your decisions about when and how much to irrigate, and so on.

INDEPENDENT VARIABLES

- Distrust source 1: Regulator Trustworthiness (4 conditions)**
 - Lack of integrity, Lack of Care/Concern, Lack of Competence, Lack of Shared Values
- Distrust source 2: Trustworthy Data Providers (3 conditions)**
 - Volunteers Only vs. Volunteers + Government Data vs. Gov’t Only
- Intervention 1: Trustworthy Data (2 conditions)**
 - High vs. low “fitness of use”
- Intervention 2: Transparency via Traceability (2 conditions)**
 - Data is highly traceable, or not

DEPENDENT & MEDIATING VARIABLES

- Trust/Distrust in decision makers and regulators using the data
- Anger vs. empathy
- Retributive & utilitarian motives
- Hacktivism support

EXAMPLE HYPOTHESES

- Distrust based on perceived incompetence will be perceived as less intentional and evoke less retributive motives than distrust based on deceit.
- Interventions increasing transparency will be more effective when distrust is based on lack of integrity rather than lack of care or benevolence.

PROPOSED IDEASPHERE & HASTI SYSTEM

“Hacktivist” Activities	Human Actions & Implementation	HASTI Actions & Tracking
Flaming or Bullying Verbal attacks	Participants and confederates can report name-calling and attacks via tags on posts.	HASTI records the perpetrator and the reporter.
Digital Defacement Unauthorized publishing	Participants can post arguments, evidence or counter-arguments that don’t meet the required criteria (e.g., required numbers of small group votes).	HASTI warns perpetrator and records initial attempt and whether the perpetrator follows through after the warning.
Ballot Stuffing Voting or rating to impact reputations and arguments	Participants as individuals or groups may rate information regardless of quality. Confederates and researchers provide quality ratings for comparison.	HASTI detects internally inconsistency (ratings uncorrelated with quality) and records the perpetrator and pattern of bias or inconsistency.
Digital Blockade Blocking of others authorized activities	Confederates inform participants of “bugs” that can be manipulated to stop others from suggesting arguments or voting to earn points and gain reputation.	HASTI records users’ attempts as well as simulating the digital blockade.
Hacking Unauthorized access or manipulation of information	Confederates role play hackers capable of certain unauthorized activities. Participants can request the confederate’s services.	HASTI module will record and enact hacking requests and track request sources (perpetrators) as recorded by confederates.

Hacktivism Support & Resistance

Behavioral Support

Cognitive-Affective Support

Cognitive-Affective Resistance

Behavioral Resistance

If I were in a position to help with such hacking efforts, I would do so. If I had the skill, I would probably help in the effort. The hacking behavior is morally right. The hacking behavior is justified. Personally, I approve of this hacking behavior in this case. I can understand why this person would engage in that hacking behavior. I feel bad for the person/persons who are engaging in this hacking behavior.

I feel bad for the target of this hacking behavior. I cannot understand why anyone would ever engage in such behavior. I generally disapprove of this hacking behavior in this case. This hacking behavior really is not justified. The behavior is morally wrong. If I knew who was doing the hacking, I would try to tell the authorities. I’d try to find a way to stop the person or persons doing the hacking if I could.

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