

Social Cybersecurity

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MOTIVATION

Low **security sensitivity** is a **large outstanding problem** in security.

What is security sensitivity?



Social influence is a key motivator of human behavior.

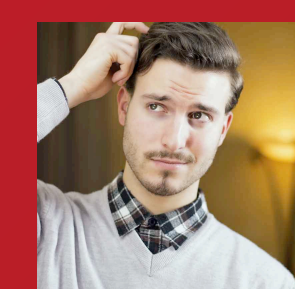
But, **little is known** about how social influence affects security sensitivity or how it can be used to **increase** security sensitivity.



Awareness: Are users aware of security tools and threats?



Motivation: Are users motivated to use security tools for protection?



Knowledge: Do users know how to use security tools for protection?

APPROACH

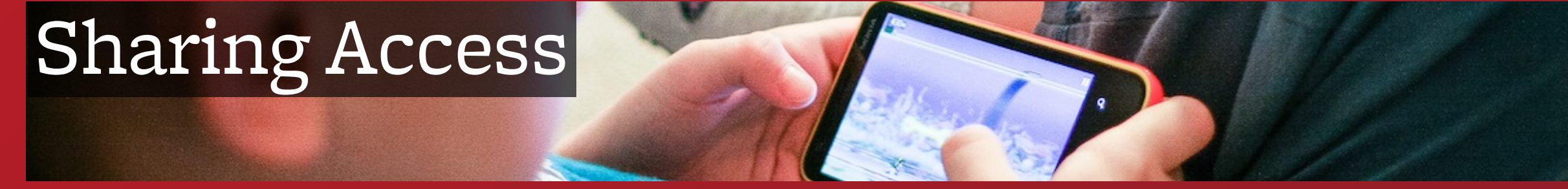
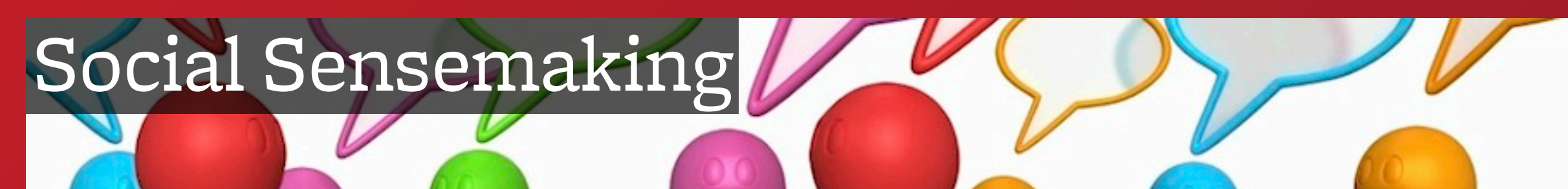
Theory-Building: Mixed methods approach to understand how social factors influence **security sensitivity**.

Tool-Building: Build tools and interventions that use social influence to increase security sensitivity.

SOCIAL CATALYSTS FOR SECURE BEHAVIORS

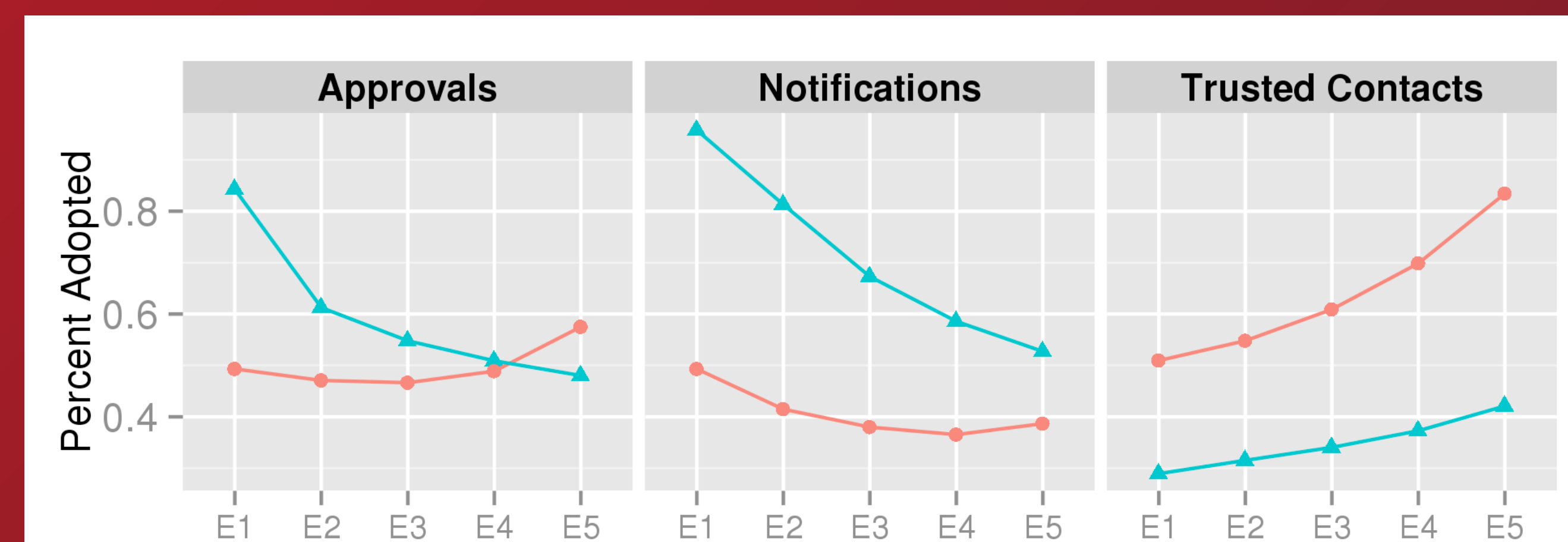
1-hour long Interviews with 19 people. Asked about specific uses of security tools, and their decisions to use those tools and share their experiences.

Social catalysts are key to many security related behavior changes.



SOCIAL DIFFUSION OF SECURITY TOOLS

Analyzed how three security tools diffused through the social networks of **1.5 million Facebook users**.



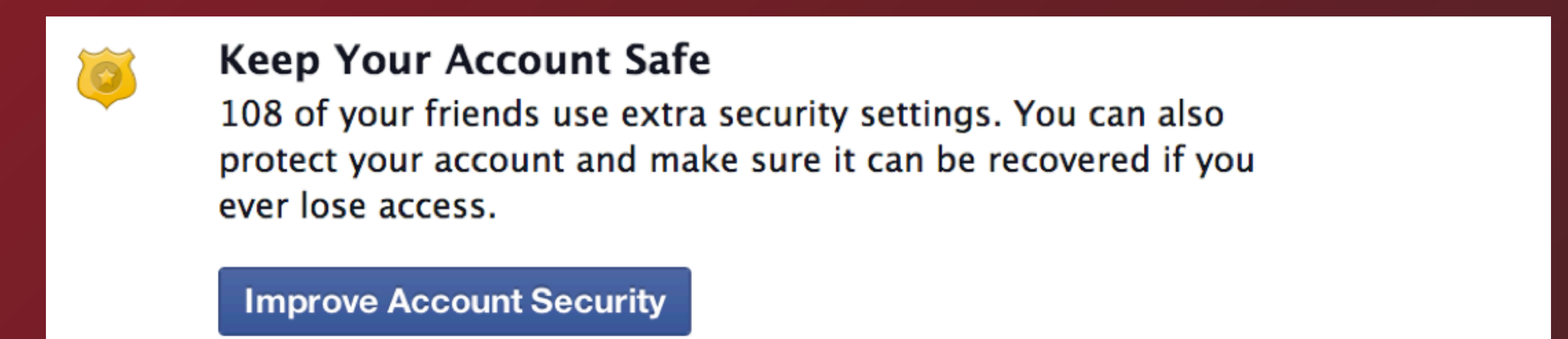
Relative adoption rates of those who are (red) and are not (blue) exposed to a certain percentage of security tool using friends.

Social influence **can both help and hurt** and security tool adoption, depending on the level of one's exposure to security tool using friends.

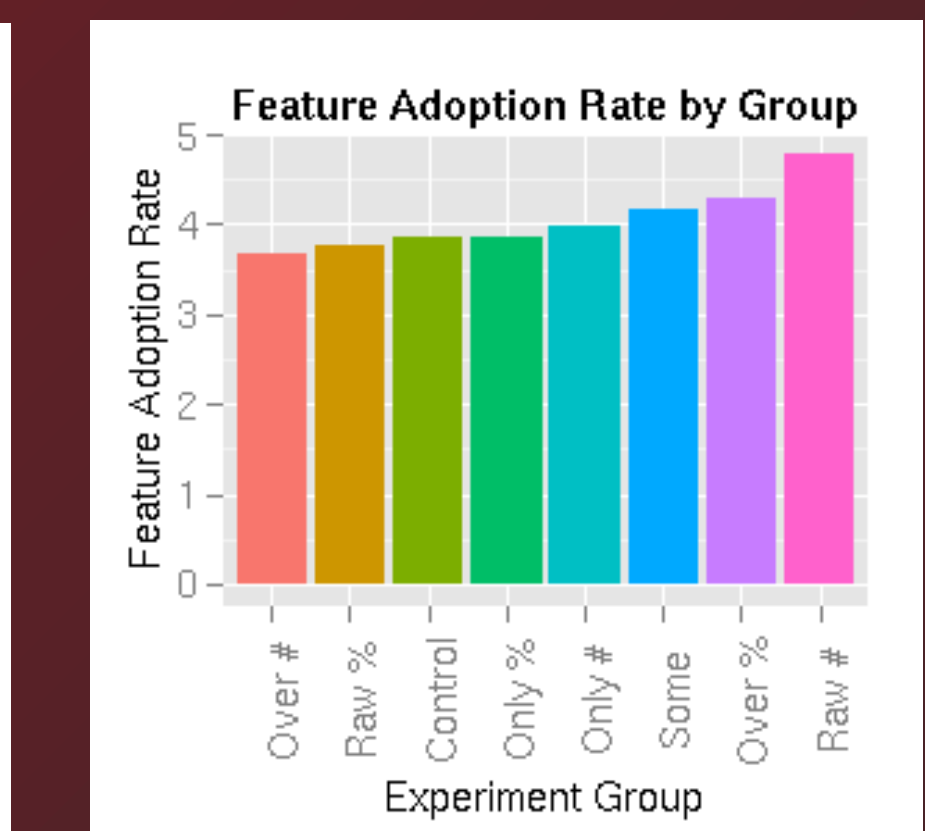
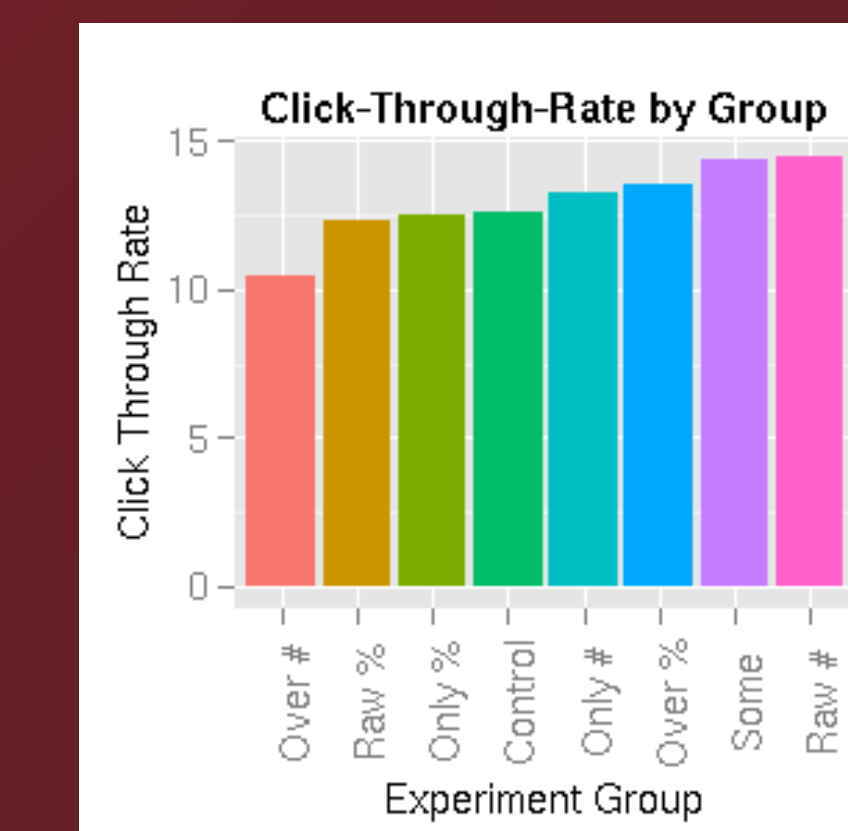
Social influence more likely to help tools that are **observable** and **socially compatible**.

INCREASING SECURITY SENSITIVITY

Randomized, controlled experiment with **50,000 Facebook users**. Showed viewers announcements that varied in the **presence, framing** and **specificity of social proof**.



Example announcements with social proof shown to Facebook users in our sample.



Click-through rates (left) and adoption rates (right) across conditions. Social proof significantly increased both click-through rate on announcements and adoption.

Das, S., Kramer, A.D.I., Dabbish, L.A., Hong, J.I. Increasing Security Sensitivity With Social Proof: A Large-Scale Experimental Confirmation. In Proc. CCS'2014.

Das, S., Kim, T.H.J., Dabbish, L.A., Hong, J.I. The Effect of Social Influence on Security Sensitivity. In Proc. SOUPS'2014.

Das, S., Kramer, A.D.I., Dabbish, L.A., Hong, J.I. The Role of Social Influence In Security Feature Adoption. To appear. Proc. CSCW'2015.

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