

Inclusive Persuasion for Security Software Adoption

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CRISP Project at USF

- CRISP: Communicating Risks in Internet Security and Privacy to users at **any proficiency level** and **socio-economic status**
- The participants
 - High-accessibility to technologies - university students in SF
 - Low-accessibility to technologies - public lab users in SF
- The Team
 - EJ Jung: Web security, Computer Science at USF
 - Evelyn Y. Ho: Health communications, Communications Studies at USF
 - Hyewon Chung: Measurement and Evaluation, Chungnam National University

Public Lab Users

- Use walk-in hours and classes on basic and intermediate skills
- (Most) live on social security
- Frequently use email and Facebook, some YouTube, game
- Sometimes use for job applications and social security
- 44 participants
- Gender: 31(70%) male, 10(23%) female, 3(7%) not share
- Ethnicity: diverse
- Education: 2 <HS, 18(40%) HS, 21(48%) some college, 3 graduate

University Students

- Have a personal laptop and a smart phone
- (Most) not CS major
- 33 participants
- Gender: 6(18%) male, 26(79%) female, 1(3%) not share
- Ethnicity: diverse
- Education: all in college

Security Software Adoption

Experts recommend users to install and keep up-to-date

- Operating systems and applications
- Security software such as firewall, anti-virus
- Modern web browsers with security features

Users often uninstall or disable

- Inconvenient
- Incomprehensible
- False sense of security

PopJART



Pop-up Javascript Analysis Research Tool

- Firefox add-on to detect malicious Javascript in websites
- Statistical language model (n-gram) + abstract syntax tree + heuristics
- Selectively disable potentially malicious JS code
- Conversational pop-up windows

Users have a choice when PopJART pops up

- Keep the JS disabled
- Learn more info
- Cancel PopJART

User Study

Participants are asked to evaluate PopJART

- Answer security experience questions
- Guess which websites contain malicious JS (total 8)
 - Bank, money transfer, games, movies, blog
- Decide how to interact with PopJART on the same websites (5 pop-ups)
 - Keep potentially malicious JS disabled, Close PopJART, More Info
- Answer security software adoption questions
 - How likely would you be to install this software on your own computer, if you have one?
- Answer demographic questions

Factors on Security Software Adoption

Yes = statistically significant correlation, No = not significant

	University students	Public lab users
Age	No	No
Recommenders	No	No (more likely)
Perceived Risk	No (more likely)	No (more likely)
Software Quality	Yes	No
Low Self-Efficacy	Yes	Yes
Low Self-Efficacy & High Software Quality	Yes	No

Conclusion and Future Work

We are still analyzing qualitative and quantitative data

- Provide guidelines for security software developers and IT admins
- Know more about public lab users
 - privacy-aware and sensitive
- Third user group?
 - age, gender, education level are highly correlated with the groups