Privacy and Security Attitudes, Beliefs and Behaviours

Masters Thesis Presentation

Janna-Lynn Weber
j6weber@uwaterloo.ca
Motivation

• Usable Privacy and Security?

• weak, uneducated, lazy, a variable to control, the enemy, one dimensional

• When it comes to privacy and security users are generally misunderstood.
The Idea

- To develop a more nuanced picture of the different types of PAS users by examining
  - How people are interacting with PAS
  - Whether current classifications are accurate
  - The attributes that allow for clustering of individuals into groups
Results

• Found 5 categories of users
  • The marginally aware,
  • The fundamentalist,
  • The struggling amateur,
  • The technician,
  • The lazy expert
Outline

• Related Work
• Goals and Study Methods
• Analysis
  • First and Second Categorization
• Design Implications - Personas
• Conclusion and Future Work
Privacy and Security

Privacy is dead
privacy is dead get over it
privacy is overrated
privacy is dead – get over it
privacy is dead zuckerberg
privacy is dead facebook
privacy is an illusion
privacy is a thing of the past
privacy is the new celebrity
privacy is a right

Google

Change Password

Your Password will need to:
- be at least 7 characters long
- be less than 32 characters long
- have at least one numeric character
- have at least one lower case character
- have at least one upper case character
- have at least one 'special' (i.e. @, %, ^, etc.) character
- NOT include all or parts of your firstname or lastname
- NOT contain accountld
- NOT contain email address

User id: j6weber

Password:

Confirm Password:

Save  Cancel
Related Work

• Westin’s Model
• Privacy Concerns User Categories
  • Marginally Concerned,
  • Fundamentalist, and
  • Pragmatist
• Built on by Ackerman et al. and Sheehan
Related Work - Problems

- Surveys
- Focus on only Privacy
- Limited predictive power
The goal of this work is to begin to address Privacy and Security attributes of users based on a view of users as a heterogeneous yet concrete community.
The Study

• Semi-structured Interviews
• 45 to 60 minutes
• Breadth of topics
• 32 participants
• 19 UWaterloo students & 13 Remote non-students
The Analysis

• Transcribed Interviews
• Over 500 relevant quotes
• Q-Clustering similar quotes
  • 85 small sub-concepts
• 24 concepts
### Examples of Concepts:

<table>
<thead>
<tr>
<th>Security versus convenience</th>
<th>Sharing passwords - frequency and situations</th>
<th>Learning source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privacy versus social</td>
<td>Determining trust of online sites</td>
<td>Opinions of monitoring</td>
</tr>
<tr>
<td>Software protection methods</td>
<td>Personal assessments</td>
<td>Helping others</td>
</tr>
</tbody>
</table>
Personal Assessments

No concerns
I’m not very secure
I don’t know how
I’m not a target
I don’t matter (honest man)
You can’t find me (obscurity)
I know it when I see it
I used to be very insecure
I protect only my bank
I treat it like it’s public
I monitor very closely

Marginally Concerned

Pragmatist

Fundamentalist
The Same as Westin’s

And it did not seem that all had been wrung from the quotations!
Second Categorization
Each similar quote created a link between participants.
• Starting at the strongest connections a weighted graph was created
P-Clusters

P5, P7, P9, P12, P15, P16

P1, P4, P8, P22, P25, P29

P10, P14, P17, P18, P19, P21, P23

P2, P6, P20, P26, P27, P30, P32

P3, P11, P13, P24, P28, P31
P-Clusters

- P5, P7, P9, P12, P15, P16
- P1, P4, P8, P22, P25, P29
- P10, P14, P17, P18, P21, P23
- P2, P6, P20, P26, P27, P30, P32
- P3, P11, P13, P24, P28, P31

Learns from TV shows and Friends

Passwords are unique and personal ‘to me’

Don’t believe they are personally a target
P-Clusters

P5, P7, P9, P12, P15, P16
P1, P4, P8, P22, P25, P29
P10, P14, P17, P18, P19, P21, P23
P2, P6, P20, P26, P27, P30, P32
P3, P11, P13, P24, P28, P31

Chooses security over convenience
P-Clusters

P5, P7, P9, P12, P15, P16
P1, P4, P8, P22, P25, P29
P10, P14, P17, P18, P19, P21, P23
P2, P6, P20, P26, P27, P30, P32
P3, P11, P13, P24, P28, P31

“I don’t matter”
(Honest Man)
Unifying Dimensions

- Identify meta-characteristics of the five P-clusters of participants
- Both Knowledge (low and high) and Motivation (low, medium and high)
Motivation vs Knowledge Continuums

*Approximation
P-Clusters

P5, P7, P9, P12, P15, P16

P1, P4, P8, P22, P25, P29

P10, P14, P17, P18, P19, P21, P23

P2, P6, P20, P26, P27, P30, P32

P3, P11, P13, P24, P28, P31
P-Clusters

- Low Knowledge & Low Motivation:
P5, P7, P9, P12, P15, P16

- High Knowledge & High Motivation:
P1, P4, P8, P22, P25, P29

- Lower Knowledge & Low - Medium Motivation:
P10, P14, P17, P18, P19, P21, P23

- Higher Knowledge & Medium - High Motivation:
P2, P6, P20, P26, P27, P30, P32

- High Knowledge & Lower Motivation:
P3, P11, P13, P24, P28, P31
P-Clusters

- **Low Knowledge & Low Motivation**
  - P5, P7, P9, P12, P15, P16
  - Marginally Aware

- **High Knowledge & High Motivation**
  - P1, P4, P8, P22, P25, P29
  - Fundamentalist

- **Lower Knowledge & Low - Medium Motivation**
  - P10, P14, P17, P18, P19, P21, P23
  - Struggling Amateur

- **Higher Knowledge & Medium - High Motivation**
  - P2, P6, P20, P26, P27, P30, P32
  - Technician

- **High Knowledge & Lower Motivation**
  - P3, P11, P13, P24, P28, P31
  - Lazy Expert
• So now what?
  • I have these long lists of traits and dimensions that aren’t very helpful for informing design on their own
  • How to incorporate these clusters into the design process?
Personas

Mark  Robert  Allison  Patricia  Henry
Personas

Mark  
Marginally Aware

Robert  
Fundamentalist

Allison  
Struggling Amateur

Patricia  
Technician

Henry  
Lazy Expert
Patricia

- The Technician -- Medium-High Knowledge and High-Medium Motivation

- “The Nigerian princes and stuff. That stuff, I know it when I see it now.”

- And Short Profile
Evaluation

• Evaluating the Categories

• Evaluating the Personas
Evaluating Categories

- Colleague’s Study on WiFi Security
- 12 Participants
- Taught them about the personas and asked them to assess the fit of their participants
Evaluation

• Evaluating the Categories

• Evaluating the Personas
Evaluating Personas
Future Work

• Expanding the user research
  • Demographically
  • Quantitatively - Survey tool

• Applying the personas to design
  • New tools or redesigns to use the differences between people
Conclusion

• The goal of this work is to begin to address Privacy and Security attributes of users based on a view of users as a heterogeneous yet concrete community.

• Qualitative Interview Study

• Privacy and Security User Categorization

• Persona Creation and Demonstrated Use
Thank you!

Questions? Comments? Concerns?
• Focus of User’s concerns

Global Security  Local Security

Global Privacy  Local Privacy