



DEPARTMENT OF
**COMPUTER
SCIENCE**

Disentangling Privacy in Smart Homes

Empowering Users' Practices

Martin J. Kraemer

supervised by Ivan Flechais

The World's Best Talking Doll

“immediate threat to the safety and security of children” - US Federal Trade Commission

“The Cayla doll has been banned in Germany. This is also to protect the most vulnerable in our society.” - German Bundesnetzagentur



Problem of ...?

People express feelings of “bewilderment, resistance and sometimes resignation” [1]

Knowledge and power imbalance between individual, the state, and the private sector with regards to data collection and processing practices

How does the case of Cayla Doll relate to these reactions?

Research Context & Questions

Social Context

1. different forms of cohabitation
 2. Social order, social norms and social practices vary
 3. one of the most private spaces
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Technology

1. Rapidly growing and evolving
 2. Heterogenous devices in purpose, use, and appearance
 3. Many product and service provider and lack of standards
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'Privacy'

1. Evolves over time
2. Existing research focusses on
 1. individuals rather than groups
 2. attitudes and preferences, less so behaviour

Empowering Privacy Practices

1. Explore practices considering social order and technology
 2. Observe and understand privacy practices over time
 3. Empower privacy practices through product design
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Research Agenda

Socio-Technical Context

RQ – What are the influences of *social* factors on the use of smart technology in the home?

Smart Home Privacy Context

RQ – How do *privacy practices* in the context of smart homes change over time?

Implications for Design

RQ – How can the resulting model improve *product design* and *privacy practices* in the context of smart homes?

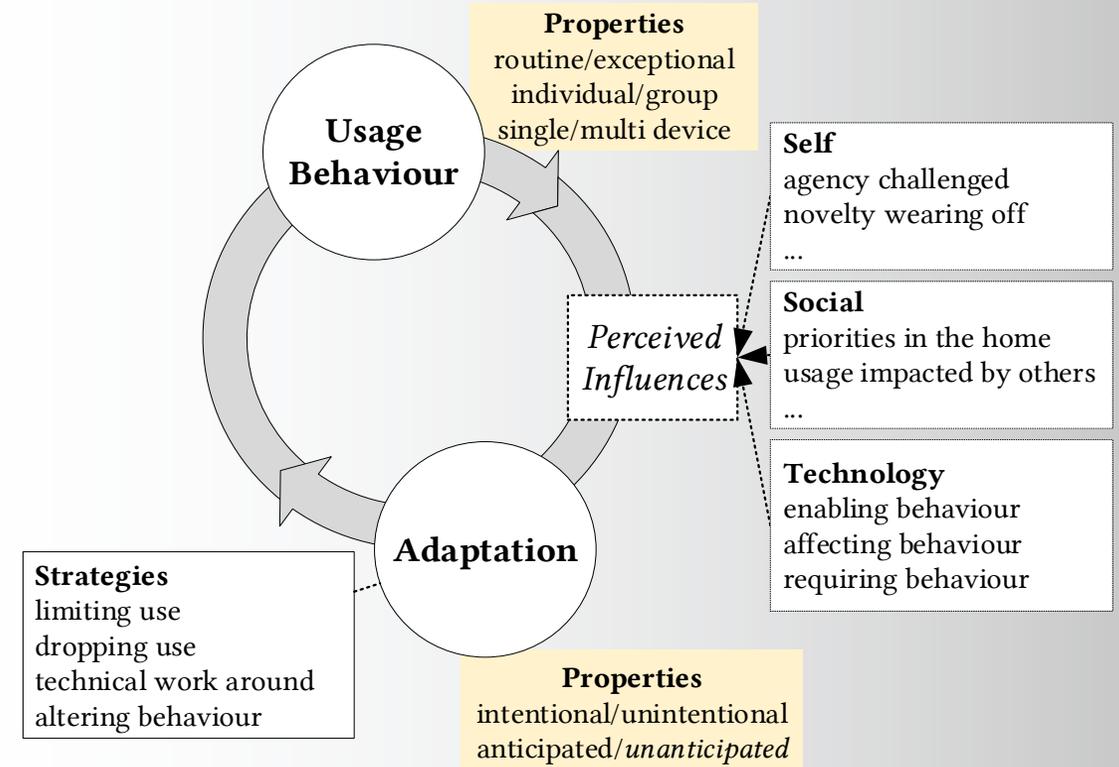
Family Acceptance: Appropriation and Adaptation

Question: How do people use internet connected technology as part of their daily routines?

Method: Mixed method Grounded Theory with 36 semi-structured interviews and 852 survey responses (online)

Findings

- Social care extends to technology [5]
 - Support follows established social relationships
 - Responsibility of technical able individual
- Differences in attitudes relate to reported preferences
 - Gender effects on care for technology
 - Collaborative appropriation – assumed vs. negotiated
- Attitudes and preferences – Hobbyists vs. Cautious?

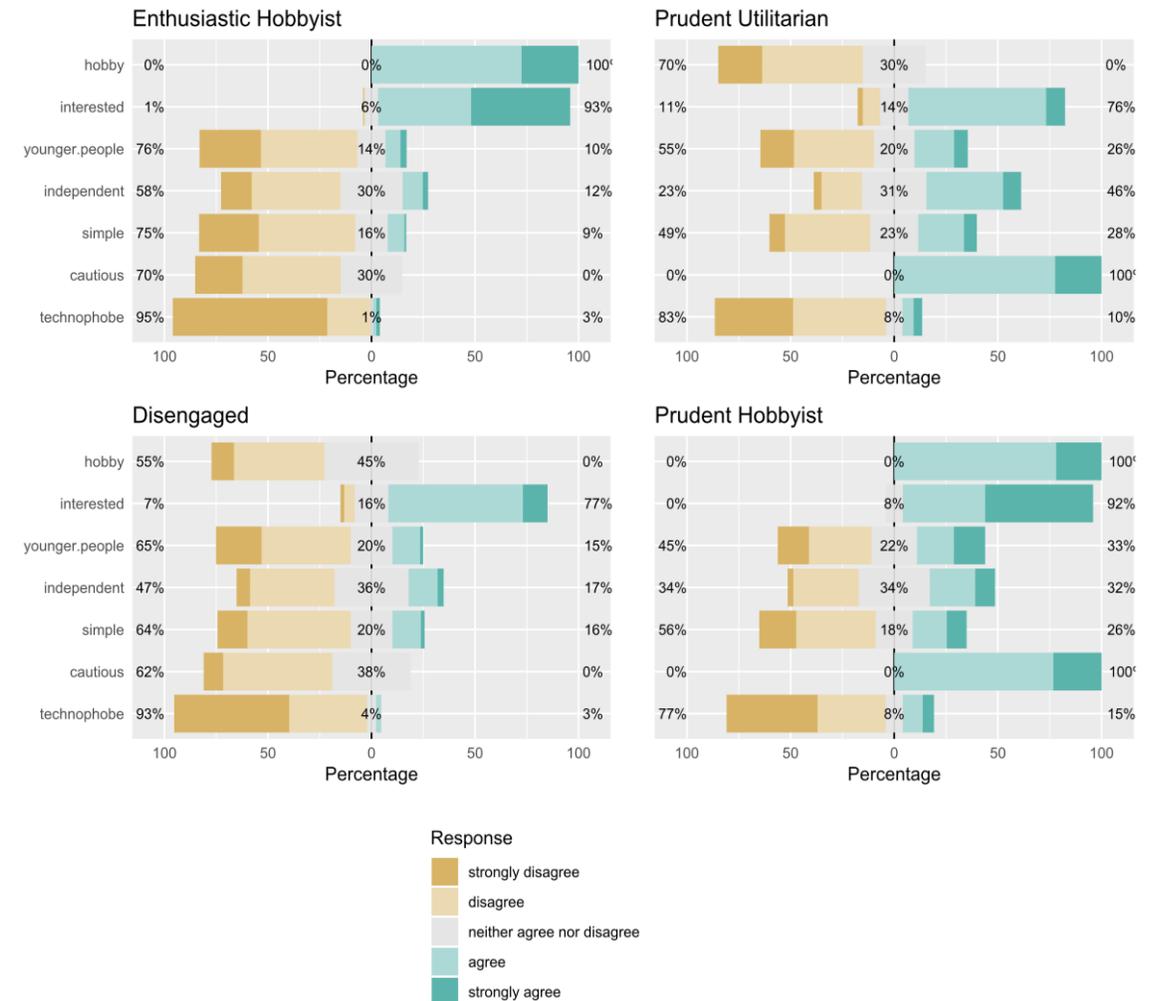


Model of Appropriation and adaptation in the Home

Continued

Discussion

- Diverse relationships of users and administrators
 - Users rely on others for configuration
 - Need consider implications on data use, protection, and sharing
- Use design goals to support negotiation between participants
- Need to understand user groups
 - Concerns, needs, capabilities
 - Foster communal consensus



Attitudes towards technology in the home

Future Work

Problem Lack of insights of how households – within their social relationships – routinely manage their privacy

Goal

Exploring the relationship between social context and technology usage, relating to *privacy practices*

Methodology

Action research through qualitative exploration

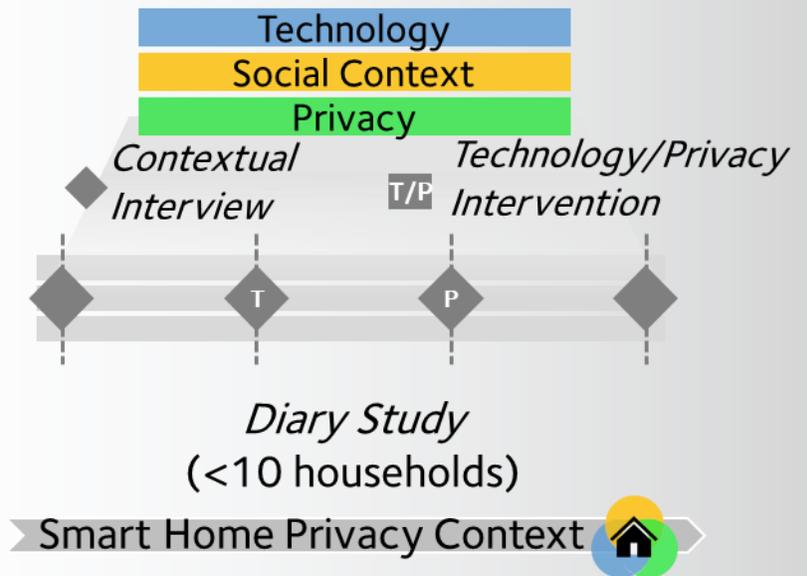
- Combining a *diary study* – monitoring change in behaviour
- Contextual *interviews* – eliciting preferences and attitudes
- *Interventions* – inducing change through education

Planned Contribution

- A model of users' privacy practices in the home
- Design implications for social responsibility

Mundane Privacy Practices

Exploratory Study



RQ – How do *privacy practices* in the context of smart homes change over time?

Key Points

- Don't try to research privacy by researching privacy
 - Much focus on attitudes and preferences
 - Lack of behavioural, in-situ (in the home) research
- My research approach
 - First, understand the socio-technical context
 - Second, explore privacy practices how they evolve over time
 - Third, investigate options to empower people

Thank you!



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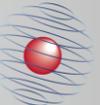


Martin J Kraemer
Doctoral Researcher

Department of Computer Science &
Centre for Doctoral Training in
Cyber Security

W: <http://www.martin-kraemer.net>
E: martin.kraemer@cs.ox.ac.uk

EPSRC
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**CENTRE FOR
DOCTORAL TRAINING
in CYBER SECURITY** 

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