

Online Privacy and Aging of Digital Artifacts

Reham Ebada Mohamed
Sonia Chiasson





what if

this info could disappear?

Related Work

- **Privacy paradox**

Spiekermann et al. 2001, Acquisti and Grossklags 2003, Ayalon and Toch 2013 & 2017, and others

- **Permanently deleting content is not appropriate**

Zhao et al. 2013, Ayalon and Toch 2017

- **Privacy settings do not support users' intentions**

Madejski et al. 2011, Zhao et al. 2013

- **Visualizing time within the UI**

Novotny 2015

Approach

- Three different decay visualizations
 - Content fading
 - Content pixelation
 - Content shrinking
- Fictitious profile on three different social networks
 - Facebook
 - Twitter
 - Instagram



Content fading

Content pixelation

Content shrinking

Research questions

RQ1: Which of the three studied visualizations best represents digital aging on social media from a user perspective?

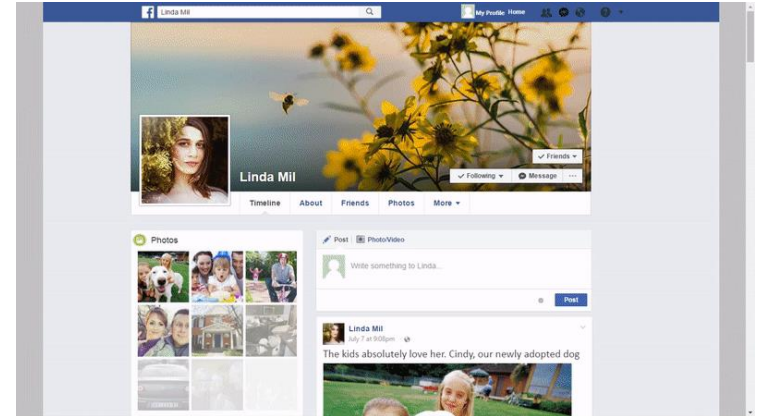
RQ2: What are users' attitudes and concerns relating to digital aging on social media?



Methodology

Participants and Procedure

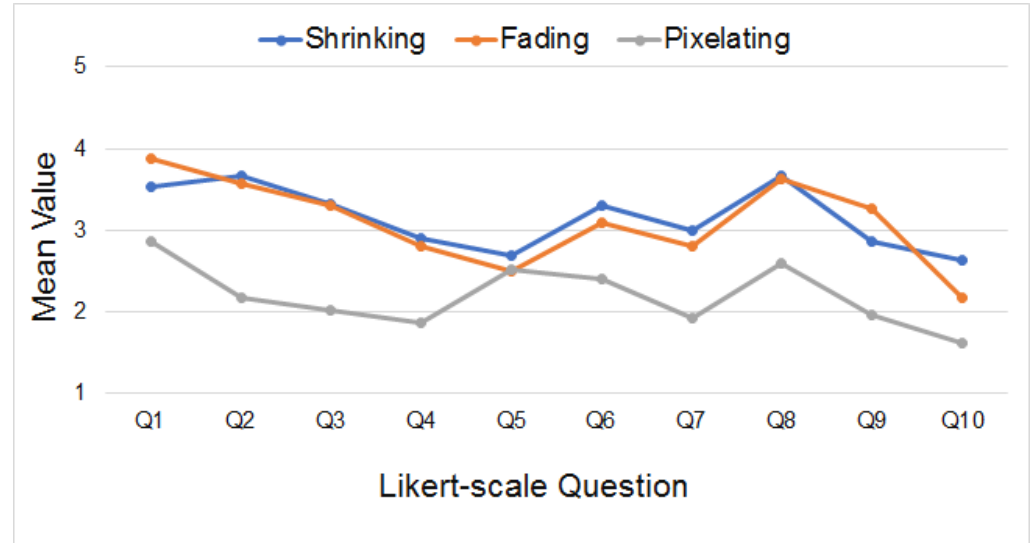
- 3x3 mixed design lab study
 - One between-subject variable (social network type)
 - One within-subject variable (decay visualization)
 - Interact with prototype → questionnaire → Semi-structured interviews → questionnaire
- 30 participants
 - 12 male and 18 female
 - Mean age of 26 (Std. Dev = 9 years)



Results

RQ1: Which of the three studied visualizations best represents digital aging on social media from a user perspective?

- Likert-scale questions
 - A significant difference between all three visualizations
 - Shrinking was the most favourable



Results

RQ1: Which of the three studied visualizations best represents digital aging on social media from a user perspective?

- Interviews
 - Shrinking and fading visualizations successfully conveyed the metaphor of memories fading over time
 - The pixilation visualization held negative connotations

Results

RQ2: What are users' attitudes and concerns relating to digital aging on social media?

Three main themes:

1. Necessity of digital aging
2. Decay and online privacy
3. Aging function: deletion, archival, expiration, or decay

Results

RQ2: What are users' attitudes and concerns relating to digital aging on social media?

Three main themes:

1. Necessity of digital aging
2. Decay and online privacy
3. Aging function: deletion, archival, expiration, or decay

Discussion: aging vs. privacy paradox



Aging metaphor

The visualization should reflect the natural forgetting process



Privacy metaphor

Privacy was seen as a binary decision

Discussion: self-public spectrum

- Individualized and complex rules for how content should be displayed to different user groups
- Can become an added effort for users

A black and white photograph of a hand pointing towards the word 'Privacy' written on a surface. The hand is in the upper right, with the index finger pointing down and to the left. The word 'Privacy' is written in a large, bold, sans-serif font on a light-colored surface. A semi-transparent white circle is overlaid on the left side of the image, containing text.

Discussion: privacy as an intangible subject

Users are still unlikely to
perform retrospective privacy
management

Preliminary recommendations

1. Have digital decay features enabled by default as a failsafe mechanism
2. Match the aging metaphor
3. Allow overrides



Limitations and Future Work

- Sample size and participant population
- Empirically examine how aging digital artifacts on an online social profile affects viewers' impression of its owner.

Conclusion

- A balanced approach to addressing users' requirements would seek to promote privacy while minimizing user effort
- Minimizing the potential unintended consequences
- A first step in a larger research program

Questions

Summary:

- Tested visualizations were fading, pixelation, and shrinking
- Shrinking was the most intuitive
- Users are still unlikely to perform retrospective privacy management
- Decay features could minimize unintended consequences

riham.mohamed@carleton.ca

<http://chorus.scs.carleton.ca/wp/people/reham-mohamed/>

