The Post Anachronism: The Temporal Dimension of Privacy

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CUPS folks looking sharp at the Privacy Law Scholars Conference dinner
Welcome to Thefacebook!

Thefacebook is an online directory that connects people through social networks at colleges.

We have recently opened up Thefacebook at the following schools:

- Alabama
- Appalachian State
- Cooper Union
- CSU Sacramento
- CUNY Hunter
- Denison
- Fuman
- Gonzaga
- IUPUI
- Kutztown
- Marymount
- Marymount Manhattan
- Monmouth
- Montclair
- MS State
- Muhlenberg
- N. Arizona
- North Dakota
- Portland
- Rose-Hulman
- Sacred Heart
- Sarah Lawrence
- Seton Hall
- St. John's
- St. Lawrence
- SUNY New Paltz
- SUNY Oswego
- Texas State
- Toronto
- Tulsa
- University of the Pacific
- Utah
- Washington State
- Williamette
- Wisconsin Milwaukee
- WPI
- Xavier

For a complete list of supported schools, click here.

Your facebook is limited to your own college or university.

You can use Thefacebook to:
- Search for people at your school.
- Find out where your friends are.
- Look up your classmates.
- See a visual map of Thefacebook.

[Image of Blase Ur's profile]
Do preferences about a post's privacy change over time?
Blase Ur shared a link.
June 15, 2006

Photo Creative Commons license by @robthurman on Flickr
Should fewer people be able to access content?
Should content just be harder to find?
Should content have an expiration date?

Photos Creative Commons by @waitscm and @MTSOfan on Flickr
What we did

• Tracked Facebook posts over time
• Participants answered questions about their own Facebook posts (Facebook API)
  – Audience, promotion
What we did

• Tracked Facebook posts over time
• Participants answered questions about their own Facebook posts (Facebook API)
  – Audience, promotion
• Two user studies:
  – Longitudinal study of the same Facebook posts over one month
  – Retrospective study of recent Facebook posts and posts from a year ago
Longitudinal study

• Followed 2 – 10 Facebook posts from creation
  – Link, photo, status update
Longitudinal study

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• Asked analogous questions the week posted, one week later, and one month later
• Final survey to explain changes observed
Longitudinal study

- Followed 2–10 Facebook posts from creation
  - Link, photo, status update
- Asked analogous questions the week posted, one week later, and one month later
- Final survey to explain changes observed
- Participants recruited from classified-ad sites Craigslist and Backpage
- Participants paid $30 total
Participants

- 63 participants
- Age 18 to 52, median 29
- 19 states in the U.S.
Participants

• 63 participants
• Age 18 to 52, median 29
• 19 states in the U.S.
• 98% log onto Facebook at least daily
• 88% had used Facebook for 3+ years
  - All at least one year
• Between 24 and 1695 Facebook friends
  - Median 339
Who did participants want to be able to access a post over time?
Access

- The **total audience** you want to be able to see the post

[Going forward], who would you like **to be able to see this post** on Facebook?

[] “everyone/public” [] “friends of friends” [] “all of your Facebook friends” [] “only some of your Facebook friends” [] “only one of your Facebook friends” [] “only you” [] “no one; it should disappear”
Total audience (access)

Desired Total Audience

- Everyone
- Friends of friends
- All Facebook friends
- Some Facebook friends
- One Facebook friend
- Only you
- No one
- Other

Percent of posts

When posted
Total audience (access)

Desired Total Audience

- Everyone
- Friends of friends
- All Facebook friends
- Some Facebook friends
- One Facebook friend
- Only you
- No one
- Other

Percent of posts

When posted  One week later
Total audience (access)

Desired Total Audience

- Everyone
- Friends of friends
- All Facebook friends
- Some Facebook friends
- One Facebook friend
- Only you
- No one
- Other

Percent of posts

- When posted
- One week later
- One month later

Total audience (access): 23
Total audience (access)

Desired Total Audience

- Everyone
- Friends of friends
- All Facebook friends
- Some Facebook friends
- One Facebook friend
- Only you
- No one
- Other

Percent of posts

- When posted
- One week later
- One month later
Total audience (access)

Desired Total Audience

- Everyone
- Friends of friends
- All Facebook friends
- Some Facebook friends
- One Facebook friend
- Only you
- No one
- Other

Percent of posts

When posted  One week later  One month later
Total audience (access)

1. Participants wanted most posts to be broadly accessible

2. They did want some posts to disappear

Percent of posts

- When posted
- One week later
- One month later
How did preferences about a specific post change over time?
Changes in access over time

Change in Desired Total Audience Per Post

One week later

0%  25%  50%  75%  100%

- Decreased
- No change
- Increased
Changes in access over time

Change in Desired Total Audience Per Post

One week later

0%  25%  50%  75%  100%

Decreased  No change  Increased
Changes in access over time

Change in Desired Total Audience Per Post

One week later

- 0% Decreased
- 25% No change
- 50% Increased
- 75% Increased
- 100% Increased
Changes in access over time

**Change in Desired Total Audience Per Post**

- One week later
  - Decreased
  - No change
  - Increased

- 0%
- 25%
- 50%
- 75%
- 100%
Changes in access over time

Change in Desired Total Audience Per Post

- One week later
- One month later

Decreased | No change | Increased

0% | 25% | 50% | 75% | 100%
Changes in access over time

1. Did not want posts to fade away wholesale with time

2. Did want both increases and decreases
Do these changes matter, or are they just noise?
Importance of changes

We asked you who you wanted to be able to see the post shown above on Facebook at three different times. We noticed that your preferences changed.

Initially, you said... [PEOPLE]
One week later, you said... [PEOPLE]
Four weeks later, you said... [PEOPLE]

How much does this change in preference matter to you?

( ) Very much  ( ) Somewhat  ( ) A little  ( ) Not at all  ( ) N/A (I didn't mean to indicate a change in preference)
Importance of changes

• Change matters “very much”
  – 8% of posts where audience shrank
  – 4% of posts where audience grew

• Change matters “somewhat” or “a little”
  – 33% of posts where audience shrank
  – 18% of posts where audience grew
Importance of changes

• Change matters “very much”
  – 8% of posts where audience shrank
  – 4% of posts where audience grew

• Change matters “somewhat” or “a little”
  – 33% of posts where audience shrank
  – 18% of posts where audience grew

• Participants changed actual Facebook settings for only 5% of these posts
Importance of changes

• Change matters “very much”
  – 8% of posts where audience shrank

Participants' desired changes aren't captured by their current actions on Facebook

• Participants changed actual Facebook settings for only 5% of these posts
Should content have an expiration date?

Photos Creative Commons by @waitscm and @MTSOfan on Flickr
Predicting changes

• **Predictions** about noticeability one week, one month, one year from now

How noticeable, compared to now, do you expect you'll want this post to be to people who can see it on Facebook one week from now?

- [ ] Much more noticeable
- [ ] A little more noticeable
- [ ] Equally as noticeable
- [ ] A little less noticeable
- [ ] Much less noticeable
- [ ] Not accessible at all
Predicting changes

Predicted Changes in Noticeability

- One week from now
  - 0%: Much more noticeable
  - 25%: A little more noticeable
  - 50%: Equally noticeable
  - 75%: A little less noticeable
  - 100%: Much less noticeable

- One month from now
  - 0%: Much more noticeable
  - 25%: A little more noticeable
  - 50%: Equally noticeable
  - 75%: A little less noticeable
  - 100%: Much less noticeable

- One year from now
  - 0%: Much more noticeable
  - 25%: A little more noticeable
  - 50%: Equally noticeable
  - 75%: A little less noticeable
  - 100%: Much less noticeable

Not accessible
Predicting changes

Predicted Changes in Noticeability

One week from now

One month from now

One year from now

0%  25%  50%  75%  100%

- **Green**: Much more noticeable
- **Light Green**: A little more noticeable
- **Gray**: Equally noticeable
- **Pink**: A little less noticeable
- **Red**: Much less noticeable
- **Brown**: Not accessible
Predicting changes

Predicted Changes in Noticeability

One week from now
- Much more noticeable
- A little more noticeable
- Equally noticeable
- A little less noticeable
- Much less noticeable
- Not accessible

One month from now

One year from now
Predicting changes

Participants thought they would want most posts to fade away over time.
Predicting changes

Prediction vs. Actual Change in Desired Total Audience One Month Later

Prediction: Less noticeable

% of posts

Less noticeable  No change  More noticeable
Predicting changes

Prediction vs. Actual Change in Desired Total Audience One Month Later

Prediction: Less noticeable

- Less noticeable
- No change
- More noticeable
Predicting changes

Prediction vs. Actual Change in Desired Total Audience
One Month Later

Prediction: Less noticeable

% of posts

- Less noticeable
- No change
- More noticeable
Predicting changes

Prediction vs. Actual Change in Desired Total Audience
One Month Later

- Prediction: Less noticeable

- Less noticeable
- No change
- More noticeable

% of posts

0 25 50 75 100
Predicting changes

Prediction vs. Actual Change in Desired Total Audience
One Month Later

- Prediction: Less noticeable
- Prediction: No change

% of posts
0 25 50 75 100

- Less noticeable
- No change
- More noticeable
Predicting changes

Prediction vs. Actual Change in Desired Total Audience
One Month Later

- Prediction: Less noticeable
- Prediction: No change
- Prediction: More noticeable

% of posts

- Less noticeable
- No change
- More noticeable
Predicting changes

Prediction vs. Actual Change in Desired Total Audience
One Month Later

Predictions of changes were not aligned with opinion over time

Prediction: Less

Prediction: More

% of posts

Less noticeable  No change  More noticeable
To whom did participants particularly want to promote posts?
Self promotion

• The **targeted audience** you particularly hope will look at the post

Going forward, is there anyone you particularly hope will look at this post on Facebook?

[] “everyone/public”   [] “friends of friends”   [] “all of your Facebook friends”   [] “only some of your Facebook friends”   [] “only one of your Facebook friends”   [] “only you”   [] “no one; it should disappear”
Targeted audience (promotion)

Desired Targeted Audience

- Everyone
- Friends of friends
- All Facebook friends
- Some Facebook friends
- One Facebook friend
- Only you
- No one
- Other

Percent of posts

- When posted
- One week later
- One month later

54
Targeted audience (promotion)

Desired Targeted Audience

- Everyone
- Friends of friends
- All Facebook friends
- Some Facebook friends
- One Facebook friend
- Only you
- No one
- Other

Percent of posts:
- When posted
- One week later
- One month later
Targeted audience (promotion)

Desired Targeted Audience

- Everyone
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Percent of posts

- When posted
- One week later
- One month later
Participants wanted to promote posts widely.
Did these preferences change over time?
Changes in promotion over time

Change in Desired Targeted Audience Per Post

One week later

One month later

0% 25% 50% 75% 100%

Decreased  No change  Increased
Did predictions align with actual changes?
Predicting changes

Prediction vs. Actual Change in Desired Targeted Audience

Prediction: Less noticeable
Prediction: No change
Prediction: More noticeable

% of posts

Less noticeable  No change  More noticeable
Detailed analyses

• Also investigated differences based on characteristics of the post and the user
  – Type of post (link, photo, status update)
  – # of likes, # of comments
  – Participant's age, gender, # friends
• Created mixed models of changes, predictions, and survey responses
  – Primary independent variable: time
Do privacy preferences differ for even older content?
Retrospective study

- Up to 5 Facebook posts made in past week
- Up to 5 Facebook posts made one year ago
- Questions similar to longitudinal study
Retrospective study

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- Recruited U.S. participants on Mechanical Turk
- Compensated $3
Retrospective study

• Up to 5 Facebook posts made in past week
• Up to 5 Facebook posts made one year ago
• Questions similar to longitudinal study
• Recruited U.S. participants on Mechanical Turk
• Compensated $3
• 234 participants
• Age 18 to 60 (median 26)
• 94% used Facebook at least daily
• 93% had used Facebook for 3+ years
Total audience (access)

Desired Total Audience

- Everyone
- Friends of friends
- All Facebook friends
- Some Facebook friends
- One Facebook friend
- Only you
- No one
- Other

% of posts

- 2012 posts (year-old)
- 2013 posts (recent)
Total audience (access)

Desired Total Audience

- Everyone

Participants wanted many year-old posts to remain broadly accessible

% of posts

- 2012 posts (year-old)
- 2013 posts (recent)
Why might people want old content to stay around?
Participant sentiment

- Participants responded to 12 statements on a 5-point Likert scale

1) I had forgotten that this post was still on Facebook

() Strongly agree  () Agree  () Neutral  () Disagree
() Strongly disagree  () Not applicable
Old posts

• 67% of year-old posts forgotten
Old posts

• 67% of year-old posts forgotten

• 9% of year-old posts raise privacy concerns
Old posts

• 67% of year-old posts forgotten

• 9% of year-old posts raise privacy concerns

• 9% of year-old posts “do not depict participants in the manner they want to appear”
Old posts

- 67% of year-old posts forgotten
- 9% of year-old posts raise privacy concerns
- 9% of year-old posts “do not depict participants in the manner they want to appear”
- 68% of year-old posts helped in reminiscence
Old posts

- 67% of year-old posts forgotten
- 9% of year-old posts raise privacy concerns
- 9% of year-old posts "do not depict participants in the manner they want to appear"
- 68% of year-old posts helped in reminiscence

Some old posts should disappear...

...but most should remain on Facebook
Limitations

• Studied only Facebook
• Convenience sample
• Used Facebook API
  – May have excluded some participants
  – Missed quickly deleted posts
• Participants may have deleted year-old posts
• Facebook API only returns the few hundred most recent posts (retrospective study)
  – Excludes most frequent Facebook users
Conclusions

• Privacy preferences change over time
  – Both increases and decreases
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• Opportunities for designing retrospective privacy mechanisms
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