“You don’t want to be the next meme”: College Students’ Workarounds to Manage Privacy in the Era of Pervasive Photography

Yasmeen Rashidi, Tousif Ahmed, Felicia Patel, Emily Fath, Apu Kapadia, Christena Nippert-Eng, Norman Makoto Su

Indiana University Bloomington
Pervasiveness of digital photography in everyday life

77% of Americans own smartphones
[The Pew Research Center]

Instagram, has doubled its user base, to 800 million monthly active users in two years
[Statista]

In Snapchat, users create 3.5 million snaps everyday* that include, for example, funny situations, selfies, and sexting**

* [Statista] ** (Roesner et al., 2014)
Pervasiveness of digital photography in everyday life

In 2009, a published photo of the Olympian swimmer Michael Phelps smoking marijuana went viral.
Pervasiveness of digital photography in everyday life

In 2011, New England Patriots cheerleader, Caitlin Davis, was fired after photos surfaced on Facebook of her defacing a person’s face with sexual and racist drawings.
Cheating
Level: expert
Cheating
Level: expert

This is Mario after doing 2 joints of marijuana. Still think doing drugs is cool?
Cheating
Level: expert

Maybe she's born with it, maybe it's methamphetamine

drgrayfang

After doing 2 joints of think doing drugs is
Maybe she's born with it, maybe it's methamphetamine

BAD ASS

GRANDMA
my main goal in life is to be as comfortable as this man is on the subway

with it, maybe it's after doing 2 joints of

BAD ASS

GRANDMA
Constant state of surveillance by one’s peers, friends, family and strangers

What does it mean to be a young adult living in such an environment?

What does this mean for an individual’s privacy, and for the challenges of trying to control the impression others have of one, now and in the future?
We focus on...

RQ1: What are the everyday privacy concerns of undergraduates with regard to photography and social media?

RQ2: How are undergraduates responding to these concerns?

RQ3: What privacy enhanced designs are inspired by this understanding?
Holistic perspective on digital photography and privacy, is needed...

Wearable camera and Lifeloggers
(Hoyle et al., 2014-15)

Public and private spaces
(Denning et al., 2014)
(Choe et al., 2011)
(Singhal et al., 2016)

Social media networks (e.g., Facebook, Snapchat and Twitter)
(Such et al., 2017)
Semi-structured interviews with undergraduate students (N=23)
Structure of the interview

Stories about privacy and technology related events

4–5 stories about different living (e.g., dorm) and public places (e.g., bar)

Attitudes and behaviors around digital photography

Sample questions from interview protocol

Q: I want you to recall an instance within the last 6 months in a living space where you or someone else felt uncomfortable because there were concerns that someone may record, post, or possess certain information about you or them.

Q: I'd like you to think about when you take a photo. How would you describe the conventions you personally follow when using social media apps, like Snapchat or Facebook, to take/share a photo?
Analytic Procedure: Identifying key concepts

Recorded and transcribed audio

Coding procedure

Iterative process using open and axial coding

Reached theoretical saturation with the first 18 interviews
What are the everyday privacy concerns of undergraduates?
Photos as threats to privacy

Personal Privacy
Judgments and misinterpretations
Captured by strangers to create memes

Group Privacy
Group privacy as “an extension” to personal privacy
[My friend] came home and was drunk. Somebody was taking a video of her ... She asked the person to delete it ... [but] she found out the video wasn't completely deleted ... She didn't want a video leaked on Twitter ... I don't think it's the general reputation she wants to have is this silly sloppy drunk girl. (P14)
Personal Privacy: Captured by strangers to create memes

[I saw a] person taking a picture and ... laughing around 'cause he was a heavier-set guy. I didn't think anything of it at that time but there was a trend going around social media of people taking pictures of each other and giving rude comments about it (P4)
Group privacy as “an extension” to personal privacy

We have **people** that **watch** all our **accounts** so if you’re ever **drinking** in your letters **[in clothes with the sorority’s name on them]**, that’s a big **no-no** because our nationals can see it, and our **chapter** will be in **trouble**. So if you ever post a **Snapchat** at a bar or a party and you have your letters on ... you’ll be **asked to remove** it. (P11)
How are undergraduates responding to their everyday privacy concerns with regard to photography and social media?
Workarounds to manage privacy

“Work patterns an individual or a group of individuals create to accomplish a crucial work goal within a system of dysfunctional work processes that prohibits the accomplishment of that goal or makes it difficult”

(Morath and Turnbull, 2005)
Experience Model: Privacy Workarounds (WA) for Surveillance from Everyday Photography

**First Stage**
- Should I be Ready for a Photo to be Taken Today?
  - WR #1 Maintain One’s Physical Appearance
  - WR #2 Self-discipline

**Second Stage**
- Should a Photo be Taken Now?
  - WA #3 Explicit or Implicit Denial by the Subject
  - WA #4 Altering the Scene

**Third Stage**
- Should the Photo be Shared?
  - WA #5 Seeking and Demanding Explicit Consent

**Fourth Stage**
- Should the Sharing of the Photo be Mitigated?
  - WA #6 Accept and Adapt
  - WA #7 Watching out for Others
  - WA #8 Negotiate Directly
Experience Model: Privacy Workarounds (WA) for Surveillance from Everyday Photography

Address the “gap between ethnographic description and the design of technology”

“Explanatory and developed in a way that has implications for strategic action”

(Rachel Jones, 2006)
Experience Model: Privacy Workarounds (WA) for Surveillance from Everyday Photography

First Stage
- Should I be Ready for a Photo to be Taken Today?
- WR #1 Maintain One’s Physical Appearance
- WR #2 Self-discipline
- WA #3 Explicit or Implicit Denial by the Subject
- WA #4 Altering the Scene

Second Stage
- Should a Photo be Taken Now?
- If yes, then
- WA #5 Seeking and Demanding Explicit Consent

Third Stage
- Should the Photo be Shared?
- If yes, then
- WA #6 Accept and Adapt
- WA #7 Watching out for Others

Fourth Stage
- Should the Sharing of the Photo be Mitigated?
- WA #8 Negotiate Directly
First Stage: The potential to be captured in a photo

First Stage

Should I be Ready for a Photo to be Taken Today?

WA #1 Maintain One’s Physical Appearance

WA #2 Self-discipline

Ubiquity of photography in public places

Being alert to one’s environments and actions

Fourth Stage

Should the Photo be Shared?

Should the Sharing of the Photo be Mitigated?

WA #3 Explicit or Implicit Denial by the Subject

WA #4 Altering the Scene

WA #5 Seeking andDemanding Explicit Consent

WA #7 Watching out for Others

WA #8 Negotiate Directly

Scene
First Stage: The potential to be captured in a photo

I know if I’m going to a social gathering, a lot of people are gonna take pictures so I make sure to do my makeup … my hair and I’ll wear a new top (P6).

WA #1 Maintain One’s Physical Appearance
Second Stage: Imminent photography and altering the scene

First Stage

WR #1 Maintain one’s physical appearance
WR #2 Self-discipline

Second Stage

Should a Photo be Taken Now?

WA #3 Explicit or Implicit Denial by the Subject
WA #4 Altering the Scene
WA #5 Seeking and Demanding Explicit Consent
WA #6 Accept and adapt
WA #7 Watching out for others
WA #8 Negotiate Directly

The brief period from when someone is about to take a photo until the photo is actually taken
Second Stage: Imminent photography and altering the scene

Second Stage

Should a Photo be Taken Now?

WA #4 Altering the Scene

[W]e were dancing around and acting stupid, and my friend started recording us ... so I stopped dancing ... (P1)
Second Stage: Imminent photography and altering the scene

If I'm hanging out at a friend's apartment and they do have alcohol, I make sure not to include that in the picture. (P4)
Third Stage: The taken photo

The photo has been taken for a subject, but is not yet shared on social media.

Third Stage

Should the Photo be Shared?

WA #5 Seeking and Demanding Explicit Consent

Fourth Stage

Should the Sharing of the Photo be Mitigated?

WA #6 Accept and Adapt

WA #7 Watching out for Others

WA #8 Negotiate Directly
Third Stage: The taken photo

Before I post pictures I say, “Hey look at my photos from the night before,” and we’ll pass each others phones around … “Hey don't put this up” or “Let's delete this” (P10)
Fourth Stage: Photo as shared object

Photo has already been shared online through social media

First Stage
- Should I be Ready for a Photo to be Taken Today?
  - WA #1: Maintain One’s Physical Appearance
  - WA #2: Self-discipline
  - WA #4: Altering the Scene

Fourth Stage
- Should the Sharing of the Photo be Mitigated?
  - WA #6: Accept and Adapt
  - WA #7: Watching out for Others
  - WA #8: Negotiate Directly
Fourth Stage: Photo as shared object

It was **snowing** and [my friend] was wearing **open-back moccasins**. One of her friends saw on a guy friend’s Snapstory ... like, “Who is this girl **wearing** moccasins?” and she was like, “I **know** who that girl is.” She took a **screenshot** and **sent** it to [my friend] ... It was a **random guy** who **made fun** of her. (P10)
What privacy enhanced designs might help to support participants goals?
Designs for Individual Stages

Photo Trajectories: It Takes a Village...
Designs for Individual Stages

First Stage
Should I be Ready for a Photo to be Taken Today?
Designing for Potential Captures

Second Stage
Should a Photo be Taken Now?
Designing for In-the-moment Maneuvers and Scene Alteration

Third Stage
Should the Photo be Shared?
Designing for Photo Negotiation

Fourth Stage
Should the Sharing of the Photo be Mitigated?
Designing to Shield from Consequences
Designs for Individual Stages

First Stage

Second Stage

Should a Photo be Taken Now?

Designing for In-the-moment Maneuvers and Scene Alteration

If yes, then

- Designs that support socially unobtrusive rejection of capture
- Designs that evaluate how “safe” a photo is

Third Stage

Fourth Stage

https://www.prospectmagazine.co.uk/magazine/putins-soviet-anti-smoking-campaign
Designs for Individual Stages

First Stage
Should I be Ready for a Photo to be Taken Today?
Designing for potential captures
Designing for in-the-moment maneuvers and scene alteration

Second Stage

Third Stage

Fourth Stage
Should the Sharing of the Photo be Mitigated?
Designing to Shield from Consequences

Designs that support vigilance (i.e., “neighborhood watch”)
Designs that ease concern about consequences of context collapse
Photo Trajectories: It Takes a Village...

First Stage
Should I be Ready for a Photo to be Taken Today?

Second Stage
Should a Photo be Taken Now?

Third Stage
Should the Photo be Shared?

Fourth Stage
Should the Sharing of the Photo be Mitigated?

The Power of the Photographer: Empowering the Subject and Bystanders, too

Making Past Workarounds Visible

Making Future Trajectories Visible
Photo Trajectories: It Takes a Village...

First Stage
Should I be Ready for a Photo to be Taken Today?

Second Stage
Should a Photo be Taken Now?

Third Stage
Should the Photo be Shared?

Fourth Stage
Should the Sharing of the Photo be Mitigated?

The Power of the Photographer: Empowering the Subject and Bystanders, too

Making Past Workarounds Visible
Making Future Trajectories Visible
Photo Trajectories: It Takes a Village...

Dilute the concentrated power of photography that resides with the photographer.

Spread that power across all interested actors.

Solutions need to answer questions on how to work around conflicts.

The Power of the Photographer:
Empowering the Subject and Bystanders, too

Making Past Workarounds Visible

Making Future Trajectories Visible
Photo Trajectories: It Takes a Village...

Did all co-owners (photographer and the subjects) of a particular photo approve it to be shared online? With whom?

Could past workarounds of a photo be visualized? Can we see to what degree different actors' decisions allowed the photo to reach its current state?

The Power of the Photographer:
Empowering the Subject and Bystanders, too

Making Past Workarounds Visible

Making Future Trajectories Visible
Summary

Provide a holistic model that highlights how undergraduate students use workarounds and live in constant state of watchfulness to manage their privacy in the face of surveillance from pervasiveness photography and social media.

Build a design opportunity map that highlights how designs can address users' privacy concerns over a digital photo’s lifespan, both on individual stages and across stages.
This material is based upon work supported by the National Science Foundation (NSF) under grant CNS-1252697. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.
Should a Photo be Taken Now?

Should the Photo be Shared?

Should the Sharing of the Photo be Mitigated?

If yes, then

First Stage

Should I be Ready for a Photo to be Taken Today?

Second Stage

Should a Photo be Taken Now?

If yes, then

Third Stage

Should the Photo be Shared?

If yes, then

Fourth Stage

Should the Sharing of the Photo be Mitigated?

Work-arounds

Maintain One’s Physical Appearance

Self-discipline

Explicit or Implicit Denial by the Subject

Altering the Scene

Seeking and Demanding Explicit Consent

Accept and Adapt

Watching out for Others

Negotiate Directly

Design for Individual Stages

Designing for Potential Captures

Designing for In-the-moment Maneuvers and Scene Alteration

Designing for Photo Negotiation

Designing to Shield from Consequences

Design Across Stages

The Power of the Photographer: Empowering the Subject and Bystanders, too

Making Past Workarounds Visible

Making Future Trajectories Visible

Yasmeen Rashidi, yrashidi@iu.edu