

PENNSSTATE



Designing the Default Privacy Settings for Facebook Applications

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Law: Privacy = “Right to be left alone” (Warren and Brandeis 1890).



Computer Science

- **Privacy: identity management solutions to address**
 - anonymity, unlinkability, unobservability, or pseudonymity



Social Psychology, Marketing, and MIS

- Frequent linkage of ***privacy*** and ***control***



What is Privacy?

- ▶ Privacy scholars “do not agree...on what privacy is or on whether privacy is a behavior, attitude, process, goal, phenomenal state, or what” (Margulis 1977, p.17)
- ▶ “The notion of privacy is fraught with multiple meanings, interpretations, and value judgments” (NAC 2007).

Privacy "is in disarray and nobody can articulate what it means" (Solove 2006, p. 477)

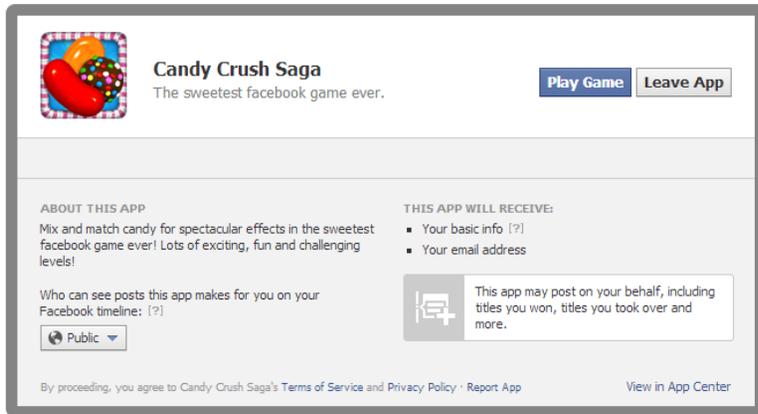


Privacy: Transparency and Control?

- ▶ Notice-and-Choice or Transparency-and-Control is at the heart of privacy regulatory schemes.
- ▶ Proposed U.S. Consumer Privacy Bill of Rights (White House 2012):
 - ▶ “companies should provide clear descriptions of [...] why they need the data, how they will use it”
 - ▶ “companies should offer consumers clear and simple choices [...] about personal data collection, use and disclosure”



Our Redesigns



Candy Crush Saga
The sweetest facebook game ever.

[Play Game](#) [Leave App](#)

ABOUT THIS APP
Mix and match candy for spectacular effects in the sweetest facebook game ever! Lots of exciting, fun and challenging levels!

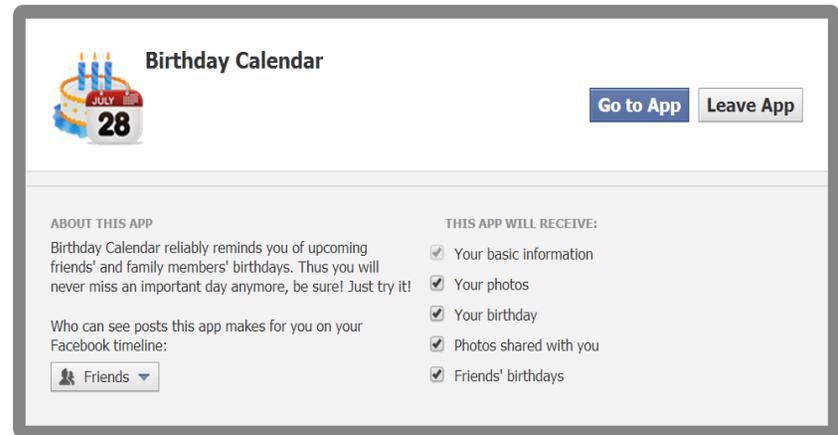
Who can see posts this app makes for you on your Facebook timeline: [?]

THIS APP WILL RECEIVE:

- Your basic info [?]
- Your email address

This app may post on your behalf, including titles you won, titles you took over and more.

By proceeding, you agree to Candy Crush Saga's Terms of Service and Privacy Policy · Report App [View in App Center](#)



Birthday Calendar

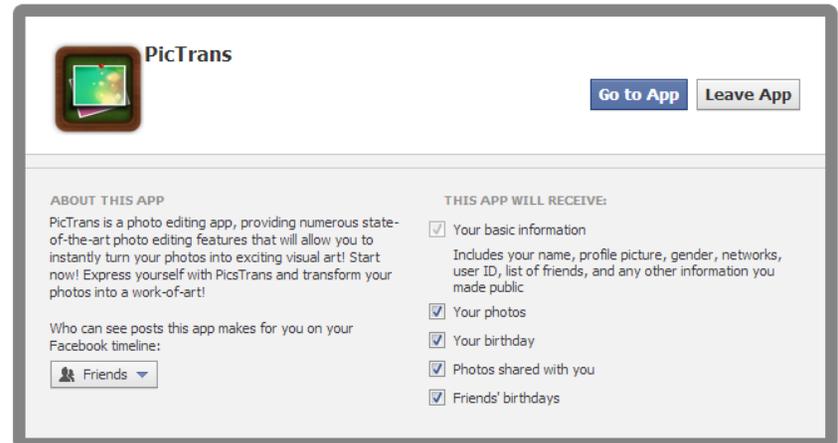
[Go to App](#) [Leave App](#)

ABOUT THIS APP
Birthday Calendar reliably reminds you of upcoming friends' and family members' birthdays. Thus you will never miss an important day anymore, be sure! Just try it!

Who can see posts this app makes for you on your Facebook timeline:

THIS APP WILL RECEIVE:

- Your basic information
- Your photos
- Your birthday
- Photos shared with you
- Friends' birthdays



PicTrans

[Go to App](#) [Leave App](#)

ABOUT THIS APP
PicTrans is a photo editing app, providing numerous state-of-the-art photo editing features that will allow you to instantly turn your photos into exciting visual art! Start now! Express yourself with PicTrans and transform your photos into a work-of-art!

Who can see posts this app makes for you on your Facebook timeline:

THIS APP WILL RECEIVE:

- Your basic information
Includes your name, profile picture, gender, networks, user ID, list of friends, and any other information you made public
- Your photos
- Your birthday
- Photos shared with you
- Friends' birthdays



Privacy: Transparency and Control?

- ▶ **Is Transparency-and-Control working?**
 - ▶ “Transparency-and-choice has failed” (Nissenbaum 2011)
 - ▶ Does not “provide people with meaningful control over their data” (Solove 2012)
 - ▶ Regard it as misdirected (Barocas & Nissenbaum 2009)
 - ▶ Illusion of Control
 - ▶ ...



Defaults

- ▶ Partially relieve users from the burden of making information disclosure decisions
- ▶ Endowment effect:
 - ▶ People are usually less willing to give up something they already have than they are willing to pay for acquiring something they do not have (Thaler 1980; Kahneman et al. 1990)



Experimental Design

2x3 between-subject

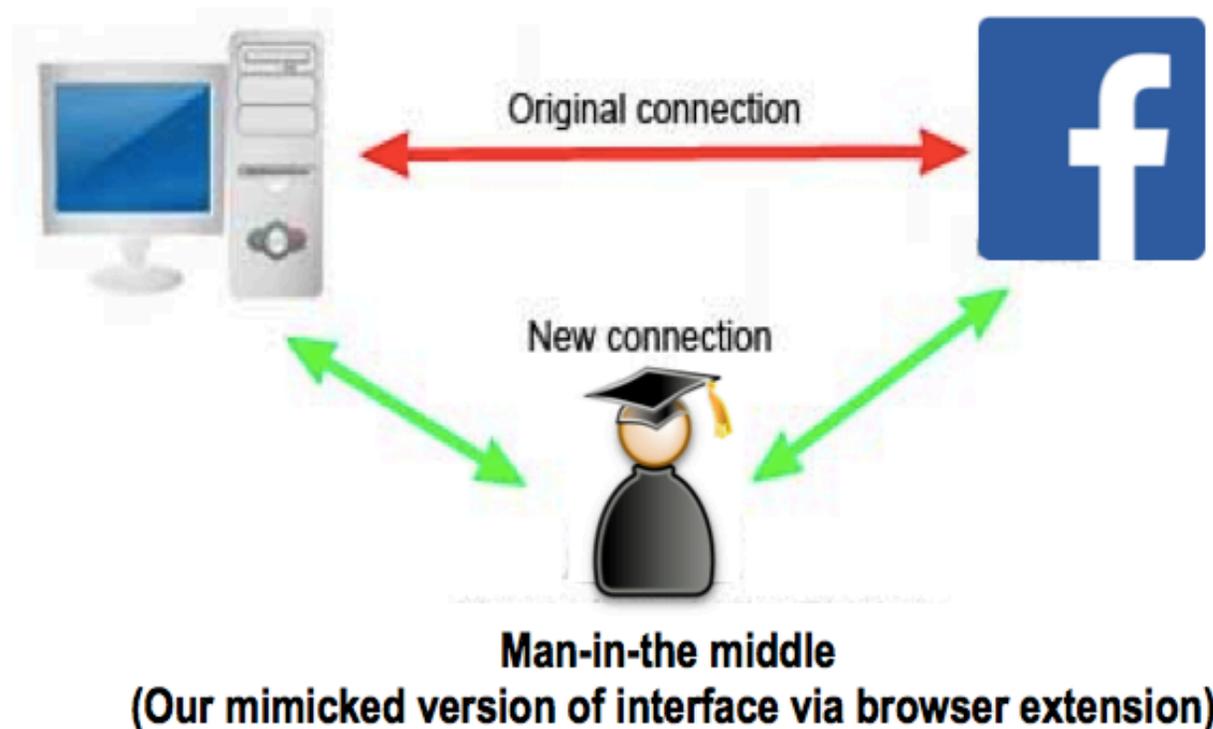
- ▶ App context: Photo App and Birthday App
- ▶ Three levels of privacy default settings: IN, MIN, and OUT.

	Photo App (P)	Birthday App (B)
Opt-In (IN)	<p>THIS APP WILL RECEIVE:</p> <input checked="" type="checkbox"/> Your basic information <input type="checkbox"/> Your photos <input type="checkbox"/> Your birthday <input type="checkbox"/> Photos shared with you <input type="checkbox"/> Friends' birthdays	<p>THIS APP WILL RECEIVE:</p> <input checked="" type="checkbox"/> Your basic information <input type="checkbox"/> Your photos <input type="checkbox"/> Your birthday <input type="checkbox"/> Photos shared with you <input type="checkbox"/> Friends' birthdays
Minimally Necessary (MIN)	<p>THIS APP WILL RECEIVE:</p> <input checked="" type="checkbox"/> Your basic information <input checked="" type="checkbox"/> Your photos <input type="checkbox"/> Your birthday <input checked="" type="checkbox"/> Photos shared with you <input type="checkbox"/> Friends' birthdays	<p>THIS APP WILL RECEIVE:</p> <input checked="" type="checkbox"/> Your basic information <input type="checkbox"/> Your photos <input checked="" type="checkbox"/> Your birthday <input type="checkbox"/> Photos shared with you <input checked="" type="checkbox"/> Friends' birthdays
Opt-Out (OUT)	<p>THIS APP WILL RECEIVE:</p> <input checked="" type="checkbox"/> Your basic information <input checked="" type="checkbox"/> Your photos <input checked="" type="checkbox"/> Your birthday <input checked="" type="checkbox"/> Photos shared with you <input checked="" type="checkbox"/> Friends' birthdays	<p>THIS APP WILL RECEIVE:</p> <input checked="" type="checkbox"/> Your basic information <input checked="" type="checkbox"/> Your photos <input checked="" type="checkbox"/> Your birthday <input checked="" type="checkbox"/> Photos shared with you <input checked="" type="checkbox"/> Friends' birthdays



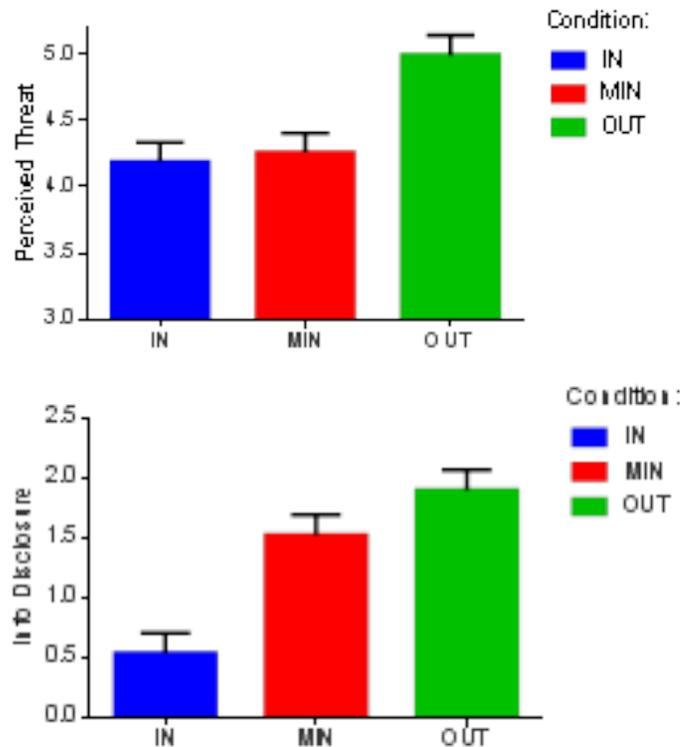
Experimental Implementation

- ▶ Mimicked Facebook's privacy notice dialogue to emulate the process of authorizing a third-party app.
- ▶ A Chrome browser extension was developed to override Facebook's default privacy notice for adding our Facebook app. (Wang et al. 2013).



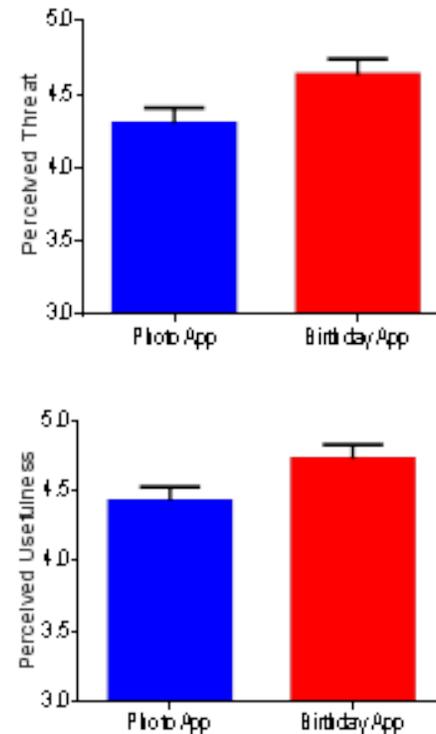
Preliminary Results

Effects of Default Settings



Participants in OUT condition perceived higher levels of privacy risk and disclosed more information

Effects of App Contexts



Default setting in Birthday App triggered higher levels of risk and higher levels of perceived usefulness than that of Photo App

