Beyond the share button:
Challenges for social features in health & wellness interventions

Sean A. Munson
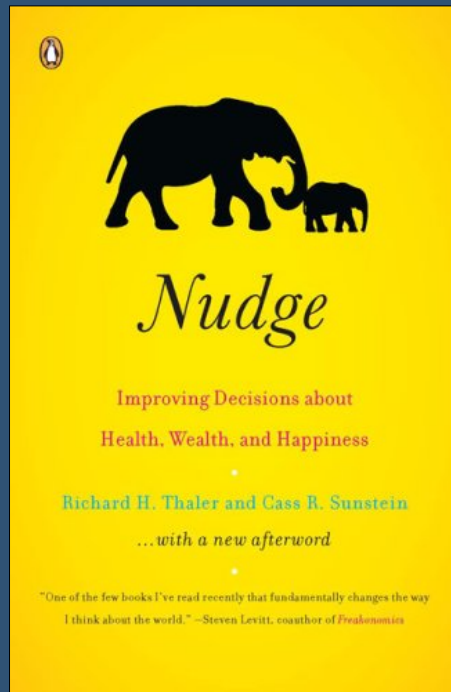
NUDGING IN SOCIOTECHNICAL SYSTEMS

All choice
environments
influence…

NUDGING IN SOCIOTECHNICAL SYSTEMS

All choice environments influence…

Nudge – something that helps you be your better self, to do the things that, in retrospect, you'll be glad you did, but might not choose in the moment.
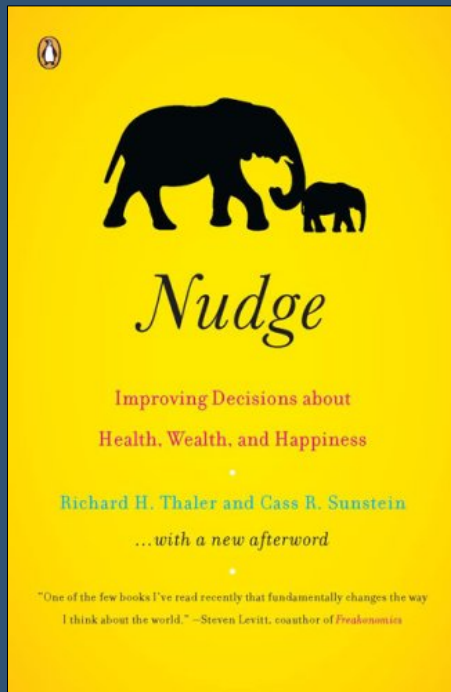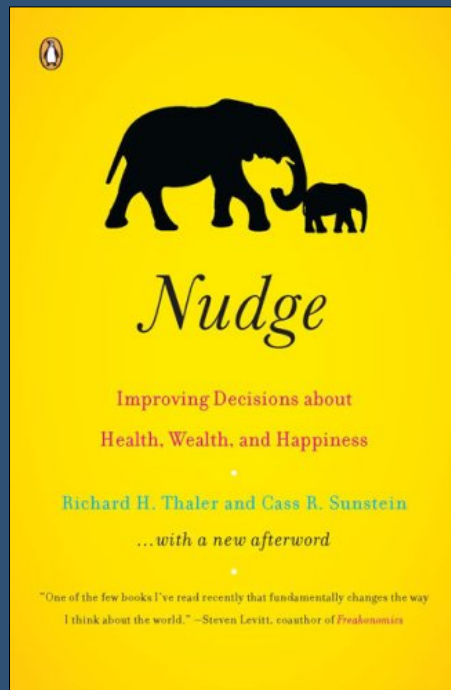
Nudging in Sociotechnical Systems

All choice environments influence…

AP

NUDGING IN SOCIOTECHNICAL SYSTEMS

All choice environments influence…

Persuasive Technology
Using Computers to Change What We Think and Do
B.J. FOGG
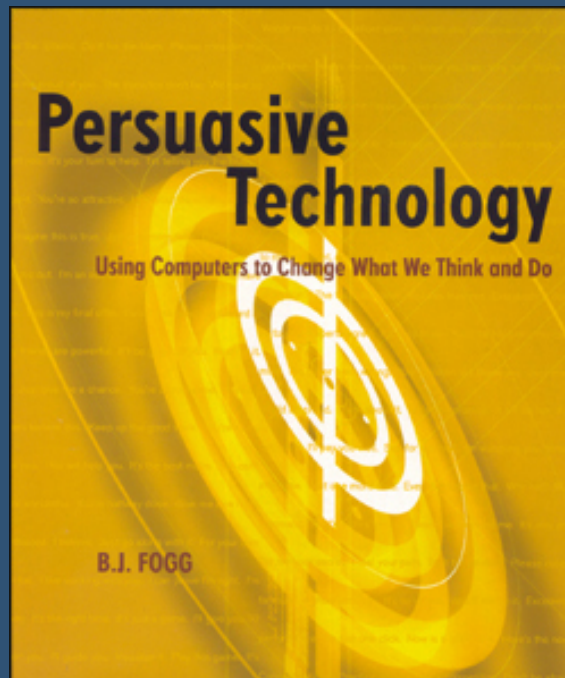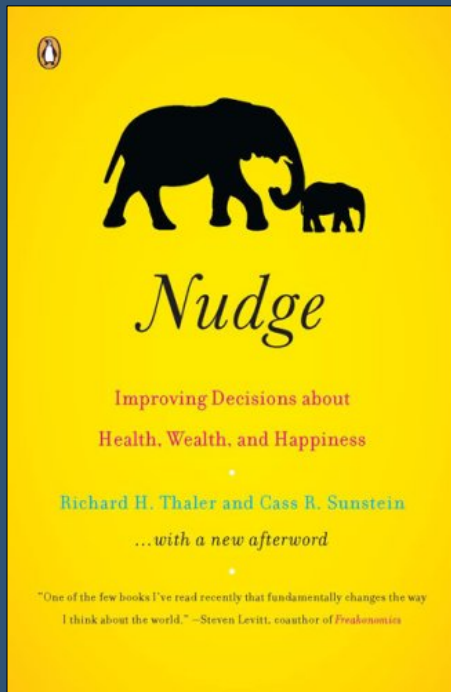
UbiFit, Consolvo et al

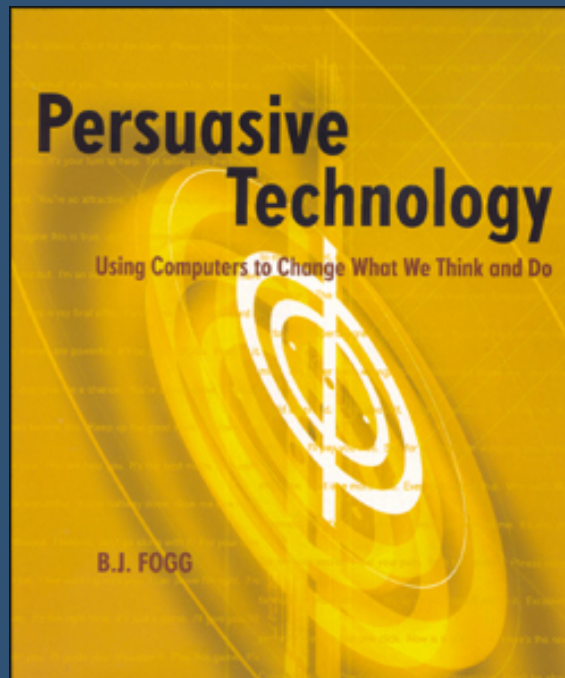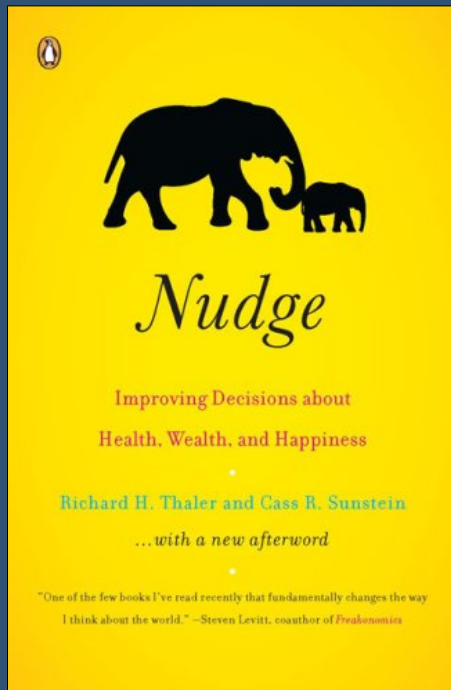*Reflect*, Froehlich et al

… including digital ones.

Lullaby, Kientz et al

Nudging in Sociotechnical Systems

All choice environments influence…

… including digital ones.

How can **social software** nudge to support everyday health and wellness?

Cookie Monster

I rowed 140,095 meters (87 miles) between 11/25 and 12/24, raising $3.60 for charity through Concept 2's holiday challenge Exercise FTW!

11 minutes ago · Unlike · Comment
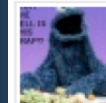
Cookie Monster

I spent 30 minutes on a stairmaster. 367 calories burned.

15 hours ago via Lose It! · Like · Comment
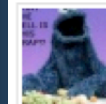
Cookie Monster

Just completed a 22.13 km run with RunKeeper. Feeling good!

RunKeeper stats and mapped route of my run
Distance 22.13 km | Duration 2:04:39 | Calories Burned 1475

Average Pace 5:38 / km | Average Speed 10.65 km/h | Elevation climb 75 m.

44 minutes ago via RunKeeper · Like · Comment · Track your fitness

Cookie Monster

I feel like giving up

I was feeling really good until a few months ago. I was walking just about every day and even began Couch to 5k. First I got shin splints really bad and had to stop running and most walking. They healed; I started up again with high hopes; then my knee swelled up and I have constant back and hip pain. I also have chronic shoulder pain. Great. It seems like all of my efforts to get fit have only hurt my physical condition more. The harder I try, the worse my health gets. It's very hard to continue wondering what my next injury will be. I want to make myself stronger, not weaker!

Pounds lost: 0

Cookie Monster

Worried, depressed, upset

Okay...I am pressing the panic button :)
I am about 150 lbs overweight. Last year I was diagnosed with Type 2 diabetes. Got that under control with Metformin and healthy eating most of the time. A1C was 6.5 last time. So, I go to the dr. last week to get a refill for my Meformin and he decides to check my blood pressure and it's 140/85!!! Too high! So, now I have to monitor it for 2 weeks and go back. I feel like crying...if it's not one thing it's another. I am worried, upset, and depressed about this.

Beyond the share button:
Challenges for social features in health & wellness interventions

7 out of every 10 American deaths are from chronic illness.

45% of Americans are living with a chronic illness.

Patients must adopt and maintain **healthy behaviors.**
They can benefit from from **social support** when doing so.

Beyond the share button:
Challenges for social features in health & wellness interventions

How can social software best support **health & wellness**?

Using health & wellness applications as experiment sites, what can I learn about **theories of influence?**

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How can social software best support **health & wellness**?

Using health & wellness applications as experiment sites, what can I learn about **theories of influence?**

Outline

Background: How do people use different online social spaces to meet their health needs?

How can social software best support **health & wellness**?

Using health & wellness applications as experiment sites, what can I learn about **theories of influence?**

Outline

Exploratory work: When and how can sharing on *Facebook* be a nudge in health & wellness applications?

How can social software best support **health & wellness**?

Using health & wellness applications as experiment sites, what can I learn about **theories of influence?**

Outline

Current work: Moving beyond the share button.

- Improved sharing & efficacy evaluation
- Social goals & Commitments

Background exploration:
Social support in Online Health Communities & Facebook

Newman MW, Lauterbach D, Munson SA, Resnick P, Morris ME. (2011). "It's not that I don't have problems, I'm just not putting them on Facebook": Challenges and Opportunities in Using Online Social Networks for Health, *CSCW 2011*.

online health communities

offer:
- Emotional Support
- Motivation and mutual accountability
- Experience-based information

Ability to connect with others anonymously and conveniently

Messaging, forums, profiles, tracking tools, produced content

Farnham et al 2002; Frost and Massagli 2009; Hwang et al 2010; Maloney-Krichmar and Preece 2005; Preece 2000; Skeels et al 2010.

Connections to existing social network, including strong and weak ties from a variety of social contexts

Real-world identity

Can connect with strangers in Facebook apps

Messaging, groups, profiles, apps

Facebook; boyd 2008; Ellison, Steinfield, and Lampe 2008; Joinson 2008.

ProHealth
Commerce with Compassion

study design

Participants who:

- were members of at least one OHC and Facebook

- had posted ≥5 messages in the past month

- Recruited from OHCs for weight loss and diabetes management

90 minute interview with screen sharing.

participants

n = 14   (3 male; 11 female)

primary communities:
- SparkPeople (n=8)
- DiabetesDaily (n=2)
- FatSecret (n=2)
- TuDiabetes (n=1)
- Personal blog (n=1)

primary health concerns:
- weight loss (n=7)
- weight maintenance (n=4)
- Type II diabetes (n=3)
- arthritis (n=1)

time in community: 1.78 years

median: 1.75 years

stdev: 1.14 years

findings
how participants met goals

- emotional support
- accountability & motivation
- advice
- impression management

emotional support

accountability & motivation

advice

impression management

emotional support

Online health communities valued over in-person: support any time of the day or night.

> "[If] I am going through a rough patch, and I post it up, I can see **immediately** someone respond."

P3

emotional support

Connect with people who have been in the same situation – more likely to be understood and receive sympathy, less likely to be judged.

> *"… and just some of the people that I am friends with, they have not had that journey, so they don't quite understand"*

P8

Trust that this can happen on OHCs vs. fear of *"sarcastic"* or *"negative"* or simply uninformed responses on Facebook.

emotional support

Strategies for what to put on Facebook vs. OHCs:

- don't post struggles to Facebook

  "I didn't want everybody on Facebook knowing that my butt muscle hurt today."

  P6

- frame messages differently for each community
  e.g., details about frustrations to OHCs, brief updates to Facebook.

emotional support

accountability & motivation

advice

impression management

accountability *preferences varied*

> "[My SparkFriends] were **checking on me** to make sure everything's okay. None of us wants each other to fall of the ladder. **They all want me to be successful and stay fit.**"

P7

> "… **they're strangers, and so you don't know that you're going to see them the next day**… so accountability doesn't quite work because you don't know the people."

P8, who recruited friends to her blog.

motivation

Role models, mentors, competitions were easier to identify or create in OHCs.

Need to **avoid people who would bring them down**, but the sense that others were there and struggling too – so long as they continued trying – also offered motivation.

Posts to Facebook as "**nudging**" *others*.

emotional support

accountability & motivation

advice

impression management

advice

Particularly important early in the process – e.g., shortly after diagnosis.

Advice/information-seeking often brought people to the online health community, but rarely why they kept coming back.

Need to share (& join) in order to get better advice.

emotional support

accountability & motivation

advice

impression management

impression management | *Facebook as front stage*

> "like a standup comedy routine"

P2

> "I have had people send me a private message of 'wow, your life is so great! You know you do this, this, and this and all these fun things happen' And I tend to think '**you know, you're only seeing what I want you to see.' … It's not that I don't have problems, I'm just not putting them on Facebook.**"

P2

impression management | *Facebook as front stage*

"On Facebook, I am not afraid to post anything about my running… I kind of like to 'out' my running ability now… I really like to talk about my running on Facebook, because **I'm so darn proud of it**…

"They're just so surprised I'm running and they'll say like 'fantastic' and 'when are you going to run?' And so yeah, I'm getting the feedback I want. **I'm finally getting… some positive feelings from those people that I couldn't get back in high school.**"

P6

impression management | *Facebook as front stage*

"There are some people I wouldn't care about if they saw [posts I might make about my health on Facebook] but I got people, you know, from my high school and that I am **friends with that I haven't talked to in 25 years. And I have no desire for them to know about my weight issues or weight status.**"

P9

impression management | _OHCs as back stage_

Can let guard down, share frustrations and struggles (and need to in order to get support and advice on this) without fear of judgment or boring others.

findings
building and shaping the network to help meet goals

building and shaping the network

Join OHCs to not feel alone, find people who can motivate and offer needed support.

… this requires sharing.

"My page was never private… to me, if I'm new, I'm not going to have friends – because I don't know anybody. And if I'm new **and I'm private on top of that, my chances of having friends is low**."

P5

building and shaping the network

Sometimes migrate OHC friends to Facebook.

- feel more connected

- increases accountability (they can reach you even if you stop visiting the OHC)

Also could stay connected to OHCs through Facebook pages.

How can existing social network sites help?
What are the opportunities associated with Facebook?

- Advice and support relevant to *your* context and personality
- People whose opinions matter
  - for accountability
  - for showing off successes & communicating and identity

How can software best support **health & wellness**?

Using health & wellness applications as experiment sites, what can I learn about **theories of influence?**

Outline

Exploratory work: When and how can sharing on *Facebook* be a nudge in health & wellness applications?

Intervention 1: Three Good Things

Seligman, M; Steen, T; Park, N; Peterson, C. (2005). "Positive Psychology Progress," *American Psychologist* 60(5), 410-421.

Intervention 1: Three Good Things

Adherence: Can integration with a social network site make it sticker?

Efficacy: Can social interaction around good things make it more effective?

Existing Facebook Groups

the *3GT* app

Good Things

Good thing:

Why did this happen:
(Always private)

Privacy & publicity: Post to your Facebook newsfeed & visible to friends ▼

[Post]

Recent Good Things from You   refresh

September 08

1. managed to fit in a short walk through Mariposa Grove (Yosemite) in on Monday   x
   Avoided getting too worried about being late   x

2. sunset from glacier point in Yosemite on Saturday   x
   Why did this happen: [   ]   [Save]

3. had a great hike up half dome on Sunday   x
   I got up early, decided I'd give it a go   x

good words

cold finally **finished** friends **great** hanging **hike** making met **new** progress **research** river **started** time yesterday

reason words

cold **decided** didn't early finally **getting idea** introduced make **organized people** research **river** **suggested time**

We are importing from your Twitter account @_____. Just use **#3gt** in your tweet. Your account must be public for this to work. [stop importing]

your friends using 3gt

the *3GT* app

Good Things

Good thing:

Why did this happen:
(Always private)

Privacy & publicity:

> Post to your Facebook newsfeed & visible to friends
> ✓ Visible to Facebook friends who visit 3GT
> Private (visible only to you)

Post

good words

cold finally **finished** friends **great** hanging **hike** making met **new** progress **research** river **started** time yesterday

reason words

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the *3GT* app

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Recent Good Things from

September 08

1. managed to fit in a short
      Avoided getting too wo

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      I got up early, decided

Sean Munson

| Wall | Info | Photos | Boxes | + |

☰ 3 Good Things   ✕

Why did this happen:

🔒 ▾   **Share**

🔍 Options

the *3GT* app

the *3GT* app

the *3GT* app

Good Things

Good thing:

Why did this happen:
(Always private)

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your friends using 3gt
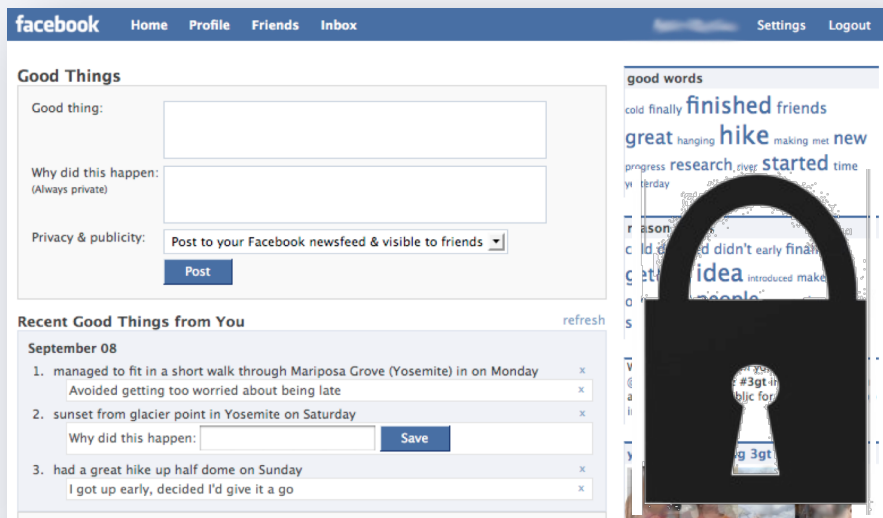
Different sharing defaults

Share on newsfeed by default

Private by default

3GT App participants

Recruited through Facebook ads, Facebook application directory, posts elsewhere online, and invites from other 3GT users.

Signups 20 July 2009– 21 February 2010.

No compensation to participate; $20 for interview.

Demographic questionnaire at signup.

PARTICIPANTS

n

Signed up: 190

Active: 55
posted at ≥twice, at least a week apart

Interviewed: 6
people who stopped participating lost to follow-up.

demographics

Age: 36.9 years

Gender: 7 men, 48 women

3GT

Positive psychology exercise around recording everyday good things.

Increase adherence & efficacy by sharing publicly & receiving feedback?

Field deployment, open enrollment.
Analysis of use logs and interviews with users.

threegthings.net

Munson SA, Lauterbach D, Newman MW, Resnick P. (2010). "Happier Together: Integrating a Wellness Application Into a Social Network Site," *Persuasive* 2010.
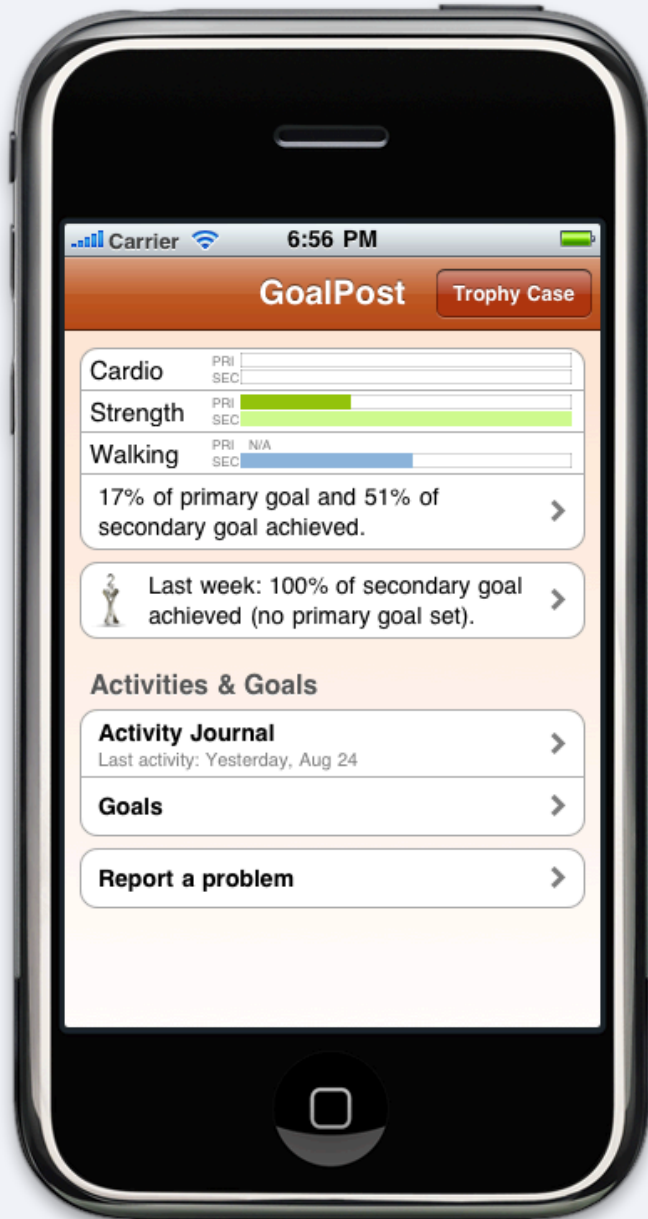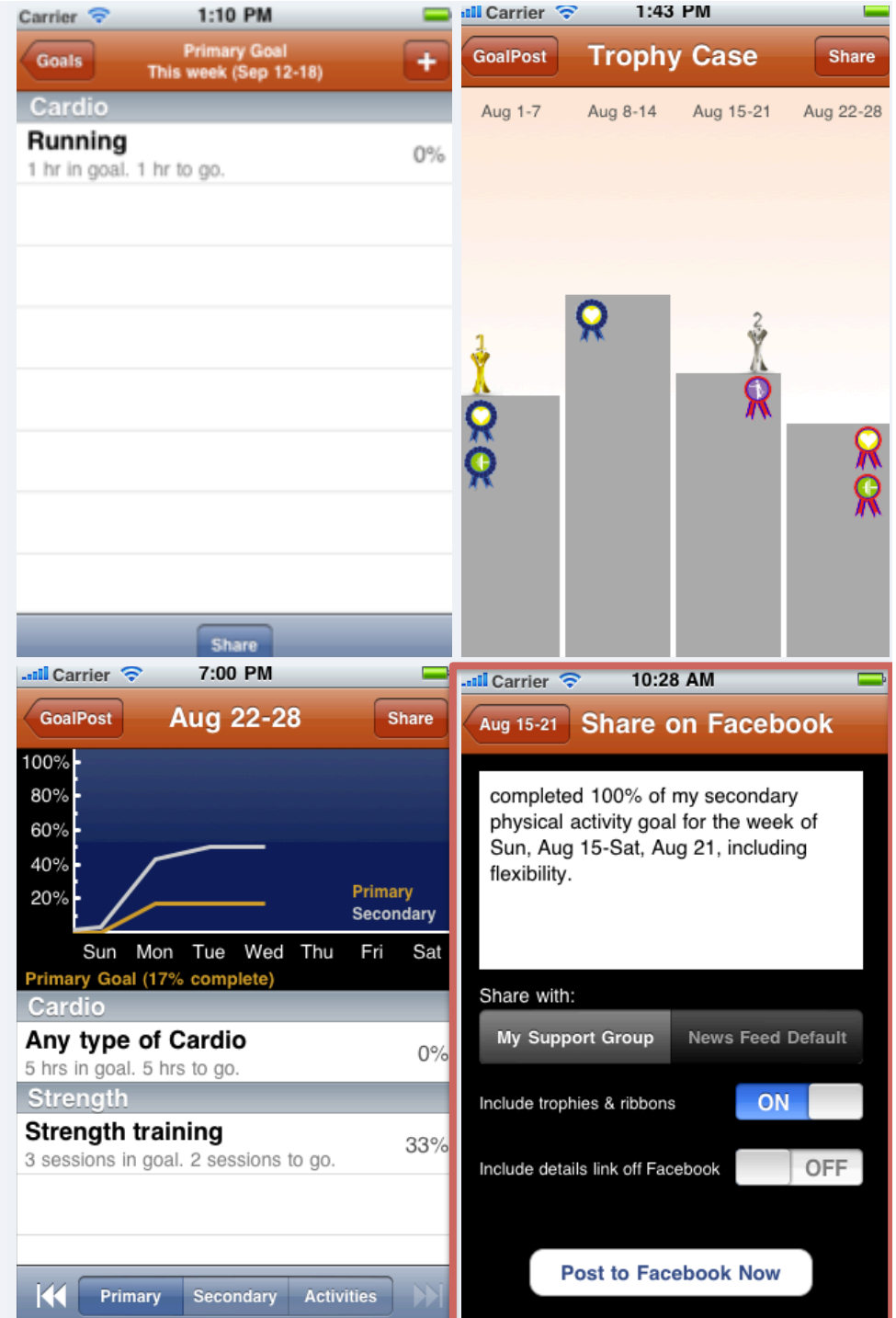
Intervention 2: Goal-setting & Self Monitoring for Physical Activity

Munson SA, Consolvo S. (2012). "Exploring Goal-setting, Rewards, Self-monitoring, and Sharing to Motivate Physical Activity," *Pervasive Health* 2012.
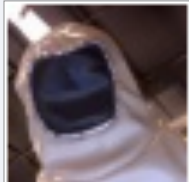
GoalPost

manual @ smunson.com/talks/msra

Carrier 6:56 PM

GoalPost · Trophy Case

	PRI	
Cardio	SEC	
Strength	PRI	
	SEC	
Walking	PRI N/A	
	SEC	

17% of primary goal and 51% of secondary goal achieved. >

Last week: 100% of secondary goal achieved (no primary goal set). >

Activities & Goals

Activity Journal
Last activity: Yesterday, Aug 24 >

Goals >

Report a problem >

Carrier 1:10 PM

Goals · Primary Goal · +
This week (Sep 12-18)

Cardio

Running 0%
1 hr in goal. 1 hr to go.

Share

Carrier 1:43 PM

GoalPost · Trophy Case · **Share**

Aug 1-7   Aug 8-14   Aug 15-21   Aug 22-28

Carrier 7:00 PM

GoalPost · Aug 22-28 · **Share**

100%
80%
60%
40%
20%

Sun Mon Tue Wed Thu Fri Sat

Primary
Secondary

Primary Goal (17% complete)

Cardio

Any type of Cardio 0%
5 hrs in goal. 5 hrs to go.

Strength

Strength training 33%
3 sessions in goal. 2 sessions to go.

|◀◀ **Primary** Secondary Activities ▶▶|

Carrier 10:28 AM

Aug 15-21 · Share on Facebook

completed 100% of my secondary physical activity goal for the week of Sun, Aug 15-Sat, Aug 21, including flexibility.

Share with:

My Support Group · News Feed Default

Include trophies & ribbons **ON**

Include details link off Facebook **OFF**

Post to Facebook Now

GoalPost | sharing

GoalPost study

23 subjects, Seattle metro area, gender balanced
contemplation, prep, action stages of TTM

12 with sharing, **11** without

21-49 years old

4⁺ week field trial

Office visit at beginning to install & introduce app
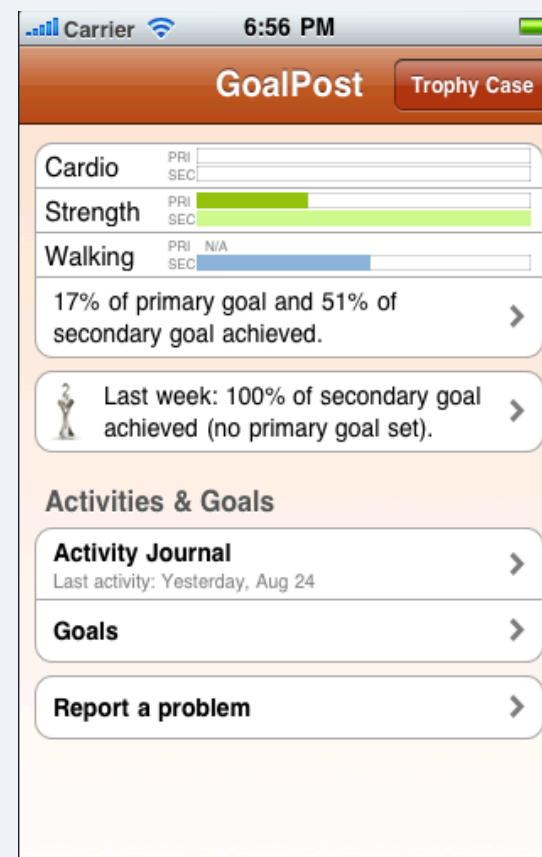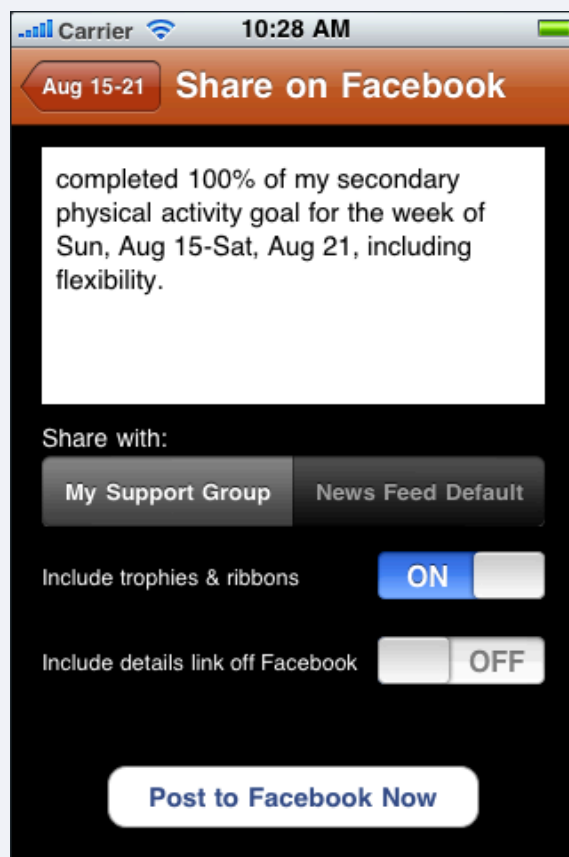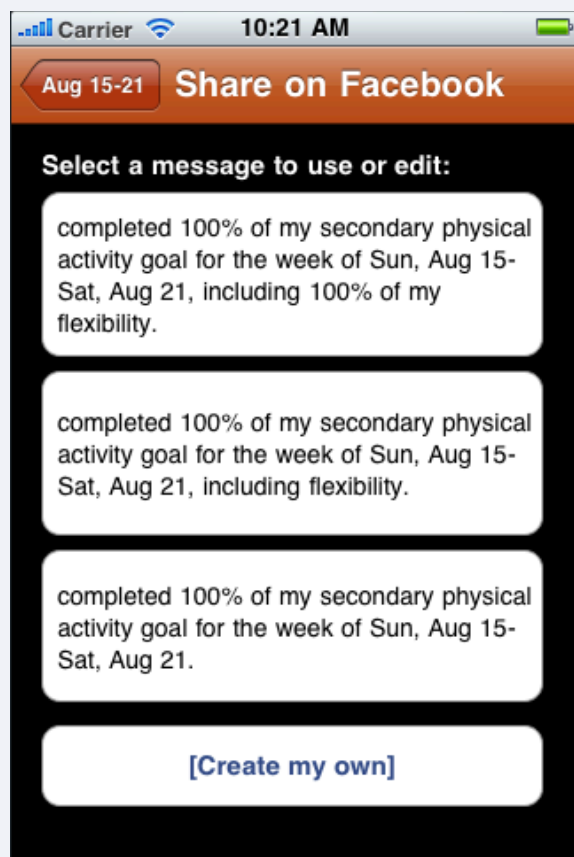5 intra-study surveys
Semi-structured interviews after study

GoalPost

4-week field deployment, 23 professionally recruited participants
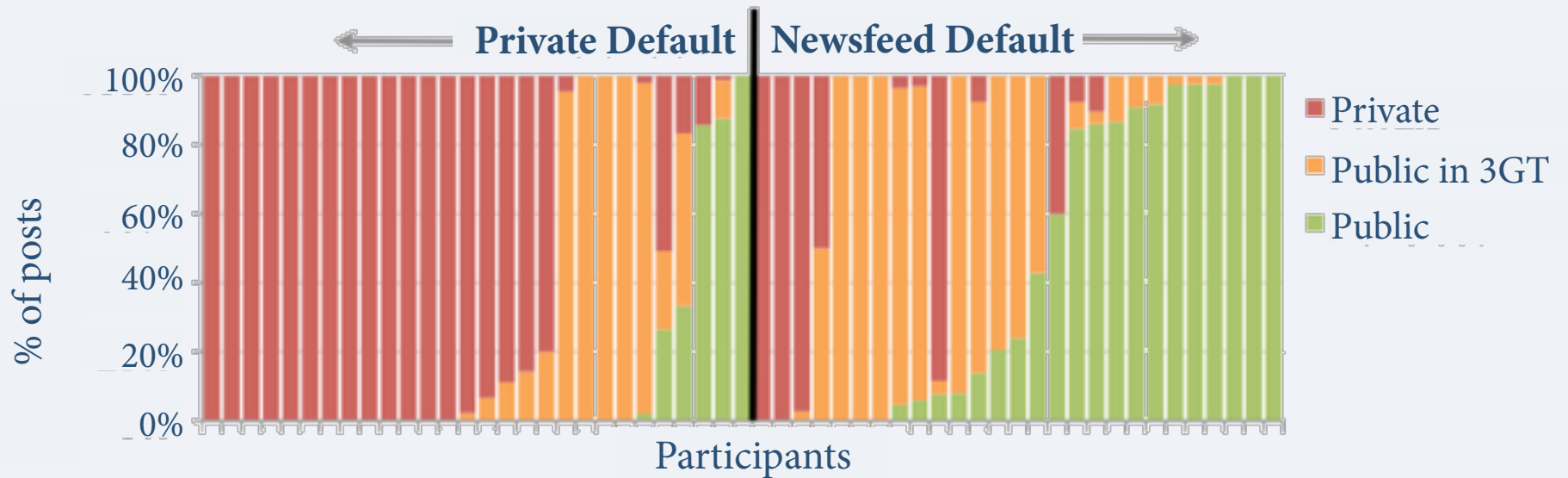12 with sharing features, 11 without

Munson SA, Consolvo S. (2012). "Exploring Goal-setting, Rewards, Self-monitoring, and Sharing to Motivate Physical Activity," *Pervasive Health* 2012.

Results

3GT | by the numbers

	Private Default	Newsfeed Default
posted to newsfeed	21%	40%
visible to friends in 3GT	23%	45%
private	56%	14%

NO IMPACT on post frequency or retention.

GoalPost | *by the numbers*

10 out of 12 shared at least once, but…

4 shared with only an empty support group

still limited by fears of violating norms, revealing weaknesses, or appearing boring or boastful.

3 configured a support group
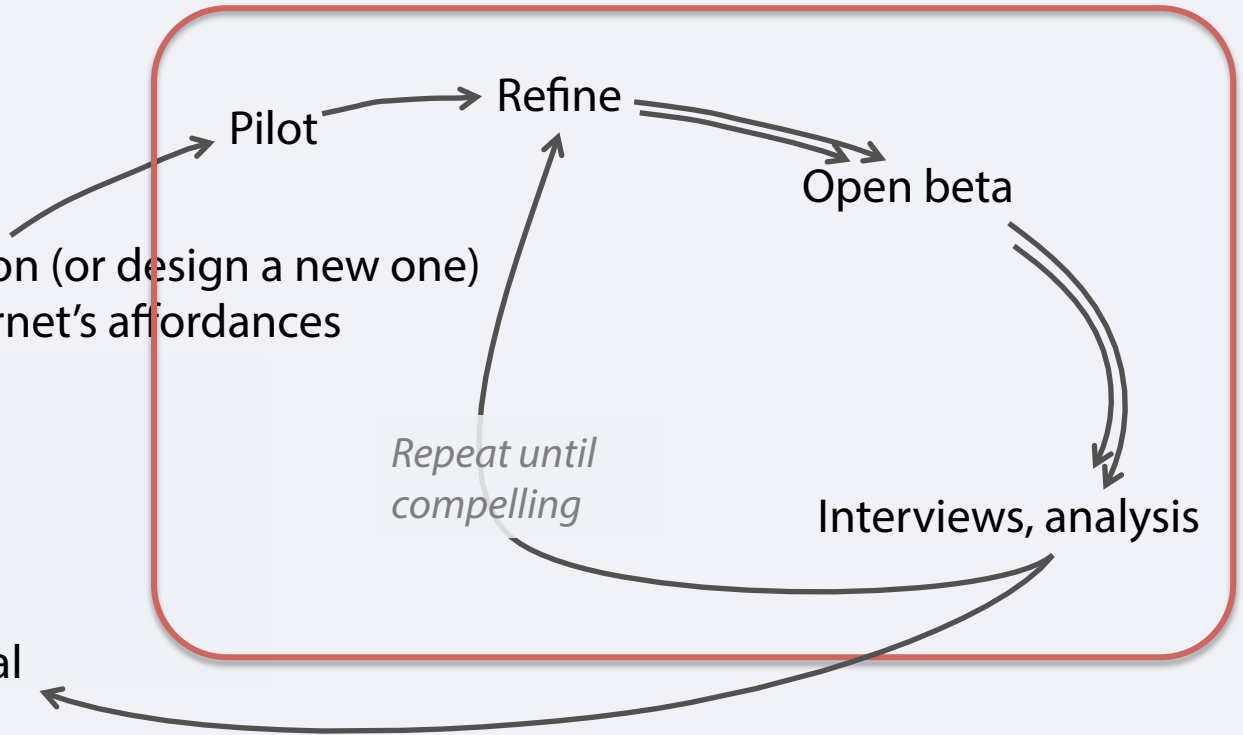
SHARING AS A NUDGE

Receive:

- emotional support
- accountability & motivation
- advice
- impression management

But face challenges with:

- building, shaping, and selectively accessing one's network
- risk of violating norms
- managing impression while meeting health needs

LIMITED SHARING…

Just completed a 8.12 mi run with RunKeeper
Duration 1:10:46 | Calories Burned 1281
Average Pace 8:43 / mi | Average Speed 6.88 mph | Elevation Climb 544 ft

Like · Comment · Track your fitness · 38 minutes ago via RunKeeper ·

Limited Sharing…

for fear of violating norms, revealing weaknesses, or appearing boring or boastful.

Limited Sharing…

for fear of violating norms, revealing weaknesses, or appearing boring or boastful.

"Mostly when I make things private, it's more because I think they'd be boring or insignificant to my friends, not because they're actually things I wouldn't want my friends to know about. I just don't want to clog up their Facebook with it…. A lot of the people I'm friends with wince about having games and other non-status update things all over their pages. **And so I don't want to get winced about.**"

– *3GT participant*

LIMITED SHARING…

for fear of violating norms, revealing weaknesses, or appearing boring or boastful.

"It's just kind of embarrassing to me… I jogged for 20 minutes today, let me tell 200 people, many of which I haven't talked to in years … **Who cares?**… I don't want to share with someone that I, you know, they comment on it, oh yeah I ran a marathon, good to go 20 minute runner guy."

– GoalPost participant 12

GOALPOST USER: I'm really depressed. If Facebook can't save me, I don't know what will help me lose weight.

RESEARCHER: Did you think Facebook was going to help?

GOALPOST USER: I thought it was going to save me, yeah.

RESEARCHER: Did it?

GOALPOST USER: No. And I'm so discouraged.

BUT WANTING SOMETHING SOCIAL

of the 55 active 3GT participants…   **24** invited friends

25 looked at friend profiles

of 4188 3GT pageviews… **660** were of a friends' Good Things

1 of 12 GoalPost users found a new exercise partner &
started going to the gym more.

But wanting Something Social

"**I got a TON of comments**…. Lots of people said they liked that, and they responded to that and congratulated me… so yeah, people do definitely comment on them when they are created from Facebook and publicized [in newsfeeds]."

– 3GT participant

BUT WANTING SOMETHING SOCIAL

"**It would have been cool to have somebody reacting** to, like you said, the sort of social interaction over the content of the posts that I've done… To have some of these things – "oh, I see you posted something", or just some reaction. Because sometimes it feels like you're out there, putting stuff out in the world and you're not getting any feedback, you know?"

- 3GT Participant

Because she's **accepting** and she wouldn't get sick of my posts. When we were talking about this and choosing a support group, all I could think of was that *Farmville* thing where I'm always seeing that someone has a cow. **That is so annoying. I didn't want to annoy another person.**

– GP7

GoalPost | **sharing:** *support group*

… my friend liked my post, my *GoalPost*, and that **made me feel good that she was at least looking at it.**

She was **the only one** out of my whole support group that looked at it.… I only got responses from my one friend that was here locally, even though I told [my support group] about it.

So I was kind of bummed. I was disappointed in my friends… it'd be really awesome if you could, you know, support me or help me do that when I post things. Nobody cared.

– GP11

How can social software best support **health & wellness**?

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Outline

Current work: Moving beyond the share button.

- Improved sharing & efficacy evaluation
- Social goals & Commitments

appropriate "selfcasting" >> privacy

3GT

Social variation of positive psychology exercise around recording everyday good things.

v2

threegthings.net

Commitments

Social variations of commitment contracts
(Giné, Karlan, Zinman 2008; Bryan, Karlan, Nelson 2010)

stickK

Where does my money go if I don't succeed?

Recipient of Stakes: ● Anti-Charity   ○ Charity   ○ Friend or Foe

What will be the consequences?

Select your consequence type

✓ --
   I will post an embarrassing story.
   I will reward myself.
   I will owe someone (e.g., doing the chores or buying them a coffee).
   I will write my own consequences.

Who will see it?

☑ Visible to all of my Faceb

[Select referee >>]

You will be billed $10.00 for any reporting p

Gun Control: NRA Foundation
Political: George W. Bush Presidential Library
Political: William Jefferson Clinton Presidential Library

1) You report that you were unsuccessful; o
2) Your Referee reports that you were unsuccessful; or
3) You fail to make a required report by the end of the second day (11:59 P.M.) following a required reporting day.

commitments.smunson.com

Commit to Steps

A test of public commitments.

with Paul Resnick, Caroline Richardson, Erin Krupka, & Michelle Draska

1. Make your commitment.

I will walk at least {{steps}} on {{days}} or more days this week.

2. Share.

Change sharing setting

Email & post this to my timeline when my commitment begins:

{{Name}} made a Steps commitment.

> Please encourage me, or better yet, walk with me!

After one week, email and post this...
... if I succeed:

{{Name}} kept a Steps commitment.

> Whew, made it!

I met my Steps goal by walking at least {{steps}} steps {{actualdays}} this week.

... if I succeed:

{{Name}} didn't keep a Steps commitment.

> :-(Push me to do better next week!

I walked more than {{steps}} only {{actualdays}} this week, {{days - actual days}} than my commitment.

Make my commitment

Additional future challenges

Additional future challenges
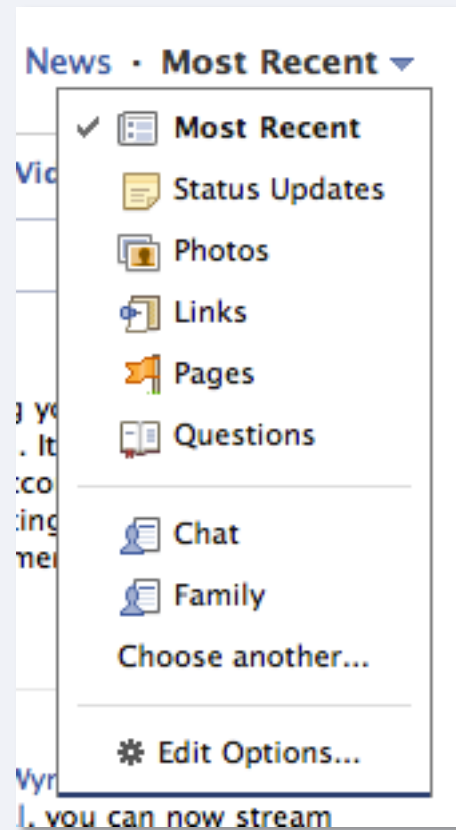
FeedRank algorithms
(Facebook already is doing this.)
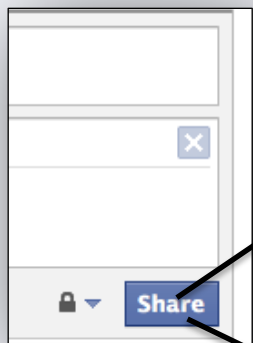
Support-seeking post

Topic or need-based lenses
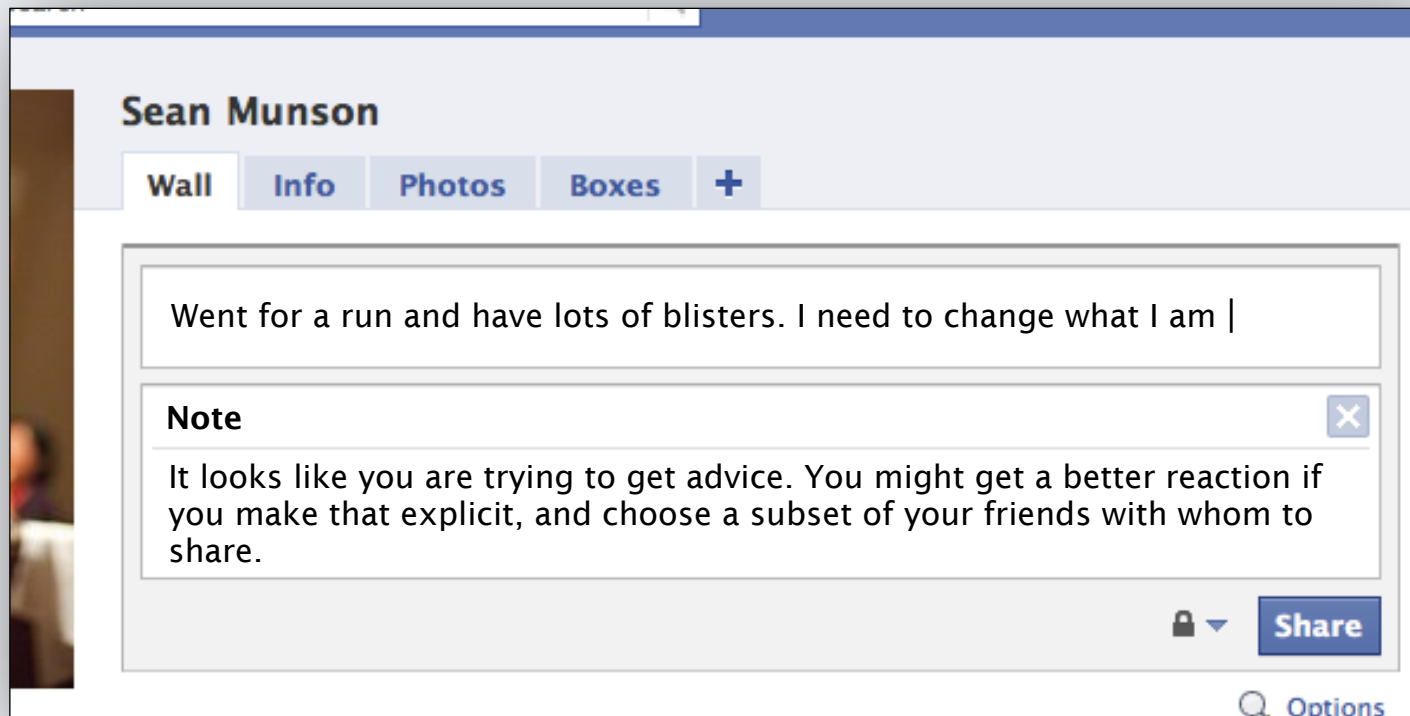(e.g., Gilbert et al, *We Meddle;* Facebook lists, Google+ circles)
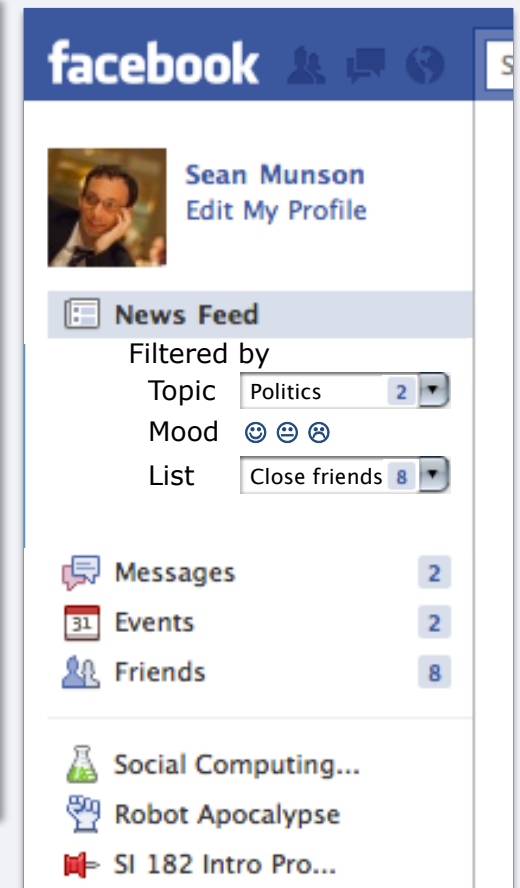
Additional future challenges

- Getting the **right content** in front of the **right people**.

Additional future challenges

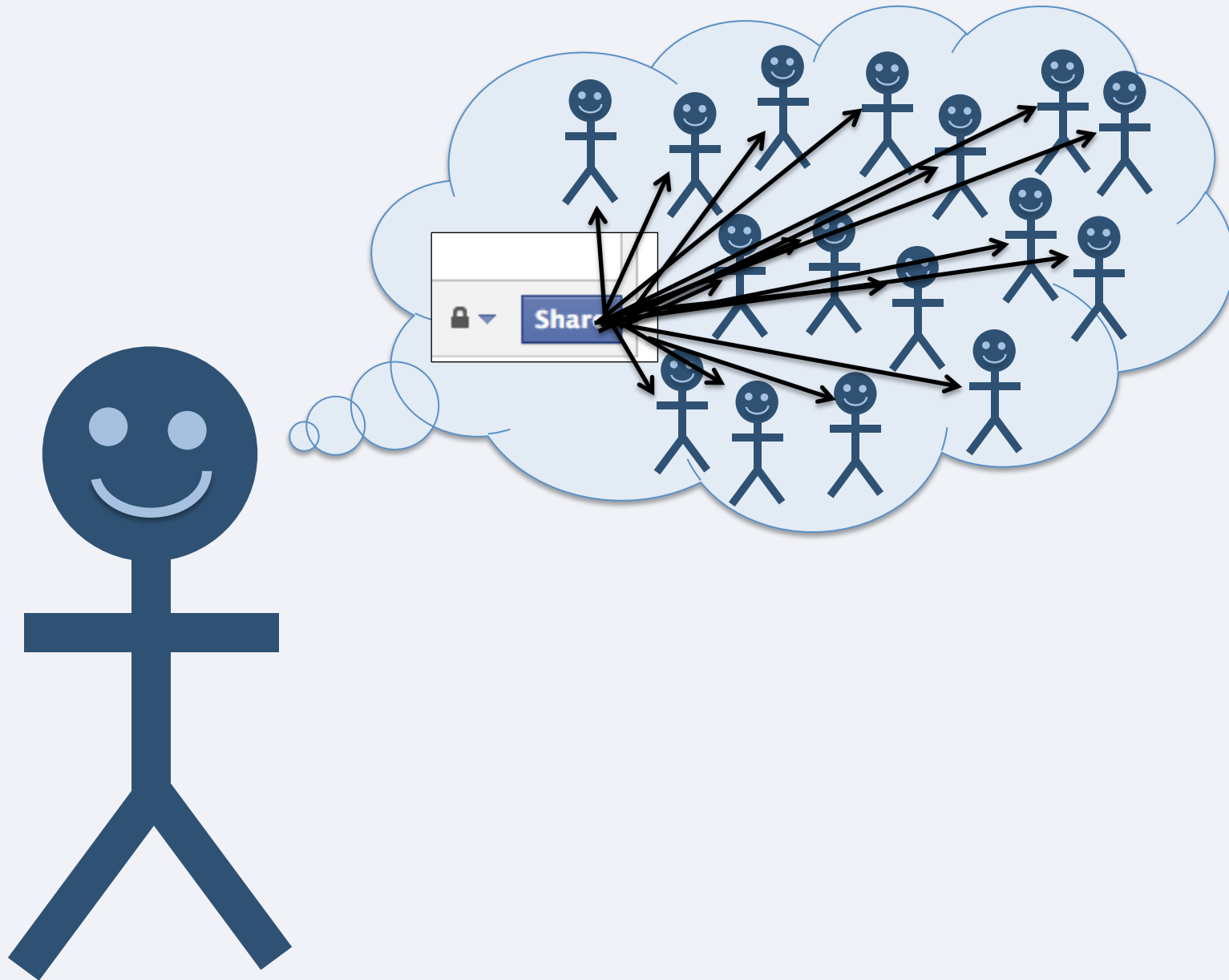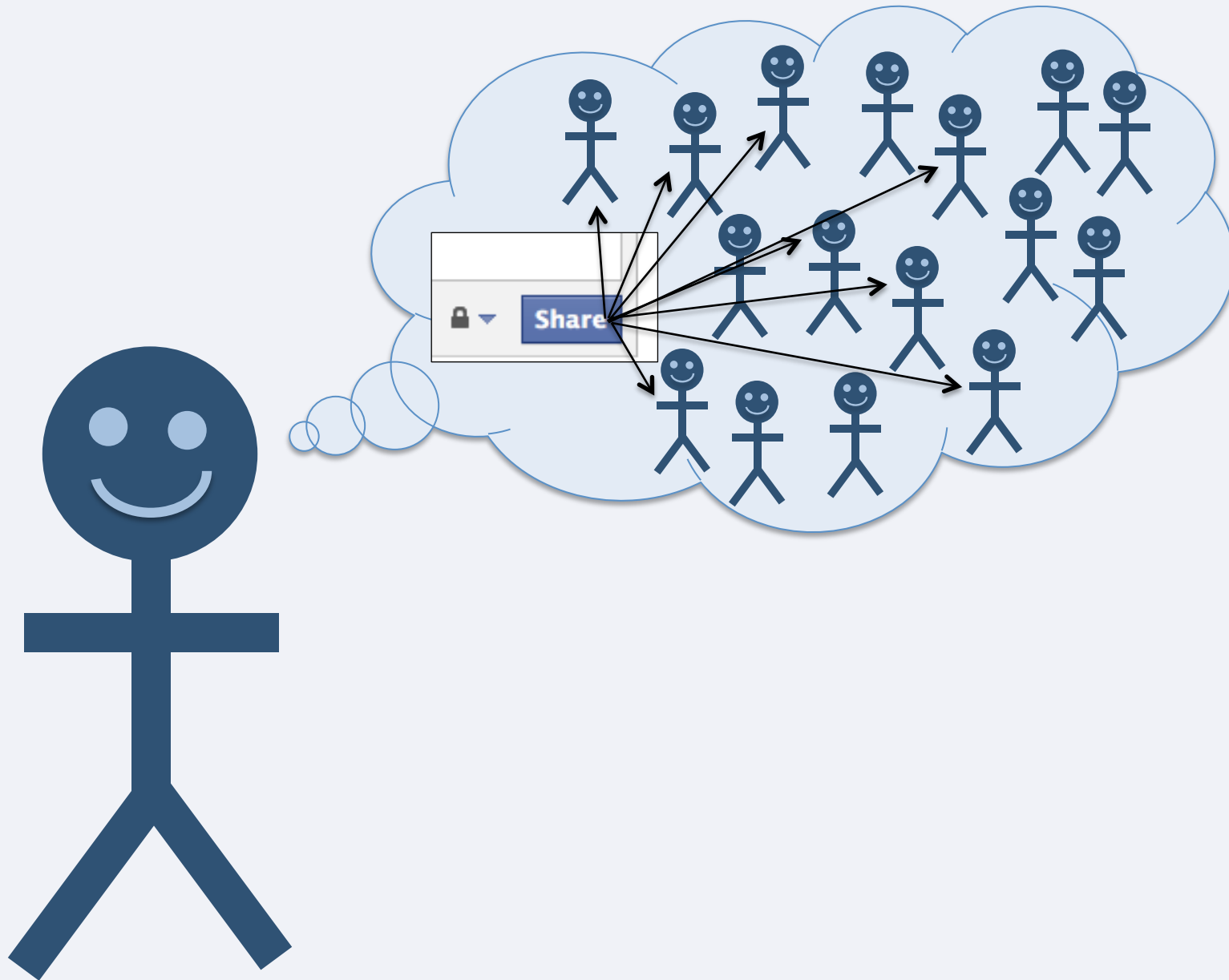# Additional future challenges

- Getting the **right content** in front of the **right people.**

- **Coaching people** on
  – Writing their posts.
  – Replying to others

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- Helping users have correct **mental models** of the feed.

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Additional future challenges

- Getting the **right content** in front of the **right people.**

- **Coaching people** on
  - Writing their posts.
  - Replying to others

- Helping users have correct **mental models** of the feed.

- **Rich profiles** that protect privacy and do not require substantial additional work.

How can social software best support **health & wellness**?

Using health & wellness applications as experiment sites, what can I learn about **theories of influence?**

Existing social network sites can relevant support, accountability, a chance to communicate a healthy identity, and a way to connect with activity partners.

Barriers to effectively using them for health goals include not violating norms, getting the right kind of support, and connecting with the right people.

Current work:

- Improved sharing & efficacy evaluation

- Social goals & commitments

thanks!

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more at smunson.com/talks/msra

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v2

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