Beyond the share button:

Barriers & potential for social computing in wellness interventions

Sean A. Munson



slides & references at smunson.com/talks/ubhave



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:

Barriers & potential for social computing in wellness interventions

People are turning to social software to help them:

- Adopt and maintain healthy behaviors
- Receive support in managing wellness challenges and chronic conditions

Beyond the share button:

Barriers & potential for social computing in wellness interventions

How can social software best support health & wellness?

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

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











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

Outline









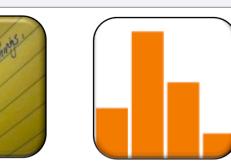


Background: How do people use different online social spaces to meet their health needs?

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?

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

SPARKFEQUE

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*.







Better information. Better health.





fatsecret"

MyCANCERPLACE Join the Community

healia.

your guide to healthy decisions™



















revolutionhealth[™]











DiabetesHealth

INVESTIGATE, INFORM, INSPIRE





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

Ability to connect with peers anonymously and conveniently

Messaging, forums, profiles, tracking tools, produced content

Farnham et al. 2002; Frost & Massagli 2009; Hwang et al. 2010; Maloney-Krichmar & 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, & Lampe 2008; Joinson 2008.





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.

<u>participants</u>

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

SPARKFEORE

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

"... 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," "negative,"* or 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."

impression management | *Facebook as front stage*

"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**...

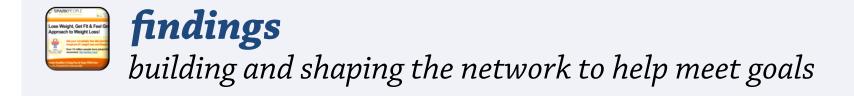
"They're just so surprised I'm running and they'll say like 'fantastic' and 'when are you going to run?' And so yeah, I'm getting the feedback I want. **I'm finally getting... some positive feelings from those people that I couldn't get back in high school.**"

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.**"

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.



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**."

building and shaping the network

Sometimes migrate OHC friends to Facebook.

- feel more connected
- increases accountability

Also could stay connected to OHCs through Facebook pages.

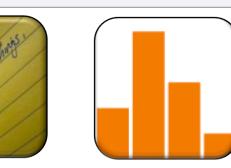


- Advice and support relevant to *your* context and personality
- People whose opinions matter
 - for accountability
 - for showing off success & communicating identity

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?

the 3GT a	app		
facebook Hom	e Profile Friends Inbox		Settings Logout
Good Things			good words
Good thing: Why did this happen: (Always private) Privacy & publicity:	Post to your Facebook newsfeed & visible to friends 💌		cold finally finished friends great hanging hike making met new progress research river started time yesterday reason words cold decided didn't early finally
Recent Good Thing	Post Is from You	refresh	getting idea introduced make organized people research river suggested time
September 08			
	a short walk through Mariposa Grove (Yosemite) in on Monday g too worried about being late	x x	We are importing from your Twitter account Just use #3gt in your tweet. Your account must be public for this to work. [stop
2. sunset from glaci Why did this ha	er point in Yosemite on Saturday appen: Save	×	importing] your friends using 3gt
-	up half dome on Sunday decided I'd give it a go	x x	your mends using 3gt

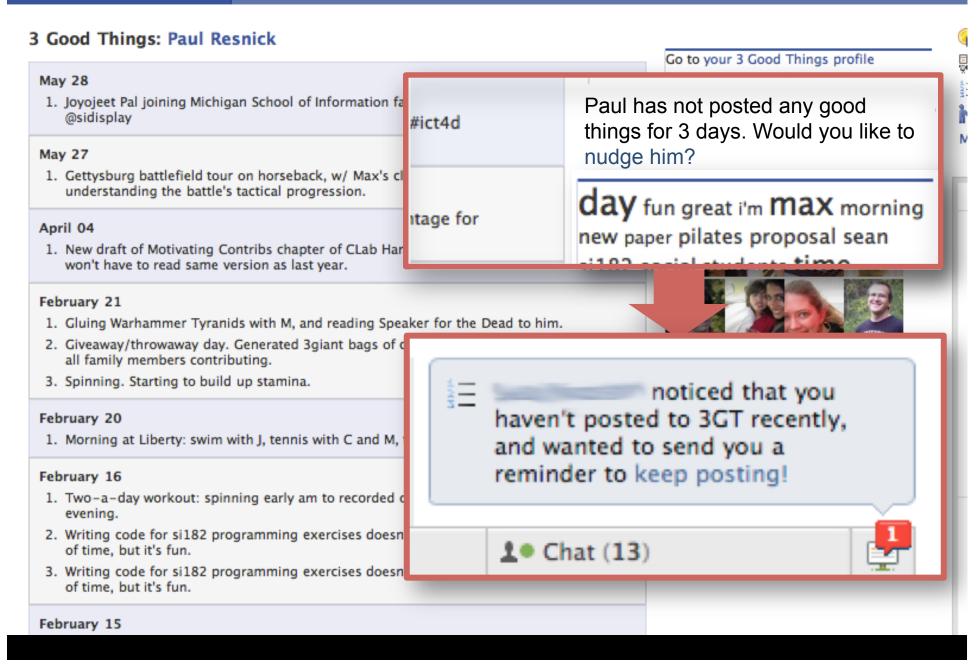
the 3GT app	
facebook Home Profile Friends Inbox	Settings Logout
Good Things Good thing: Why did this happen: (Always private) Post to your Facebook newsfeed & visible to friends Y Visible to Facebook friends who visit 3GT Privacy & publicity: Post Post	good words cold finally finished friends great 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
Recent Good Things from You refresh	suggested time
September 08 1. managed to fit in a short walk through Mariposa Grove (Yosemite) in on Monday Avoided getting too worried about being late 2. sunset from glacier point in Yosemite on Saturday	We are importing from your Twitter account Just use #3gt in your tweet. Your account must be public for this to work. [stop importing]
Why did this happen: Save 3. had a great hike up half dome on Sunday × I got up early, decided I'd give it a go ×	your friends using 3gt

the 3GT app		
facebook Home Profile F	riends Inbox	Settings Logout
Good Things Good thing:		good words cold finally finished friends great hanging hike making met new
Why did this happen: (Always private)		progress research river started time yesterday
Privacy & publicity: Post t	Sean Munson	reason words
Recent Good Things from September 08 1. managed to fit in a short	Wall Info Photos Boxes +	
Avoided getting too wo 2. sunset from glacier point Why did this happen:	things	
3. had a great hike up half c I got up early, decided	Why did this happen:	
		🔒 👻 Share
		Q. Options

the 3GT a	pp		
facebook Hom	e Profile Friends Inbox		Settings Logout
Good Things Good thing: Why did this happen: (Always private)			good words cold finally finished friends great hanging hike making met new progress research river started time yesterday
Privacy & publicity: Recent Good Thing	Post to your Facebook newsfeed & visible to friends Post S from You	refresh	reason words cold decided didn't early finally getting idea introduced make organized people research river suggested time
September 08			suggested time
 managed to fit in Avoided getting sunset from glacie 	a short walk through Mariposa Grove (Yosemite) in on Monday I too worried about being late er point in Yosemite on Saturday	x x x	We are importing from your Twitter account Just use #3gt in your tweet. Your account must be public for this to work. [stop importing]
	ppen: Save p half dome on Sunday lecided I'd give it a go	x	your friends using 3gt

facebook Home Profile Friends Inbox		Settings Logout
Good Things		good words cold finally finished friends great hanging hike making met new
Why did this happen: (Always private)		progress research river started time yesterday
Privacy & publicity: Post to your Facebook newsfeed & visible to friends Post Post		reason words cold decided didn't early finally getting idea introduced make organized people research river
Recent Good Things from You	refresh	suggested time
September 08 1. managed to fit in a short walk through Mariposa Grove (Yosemite) in on Monday Avoided getting too worried about being late	x	We are importing from your Twitter account Just use #3gt in your tweet. Your account must be public for this to work. [stop importing]
2. sunset from glacier point in Yosemite on Saturday Why did this happen: Save	×	your friends using 3gt
3. had a great hike up half dome on Sunday I got up early, decided I'd give it a go	x	OR ON

facebook



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

Interviewed:6people who stoppedparticipating 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.

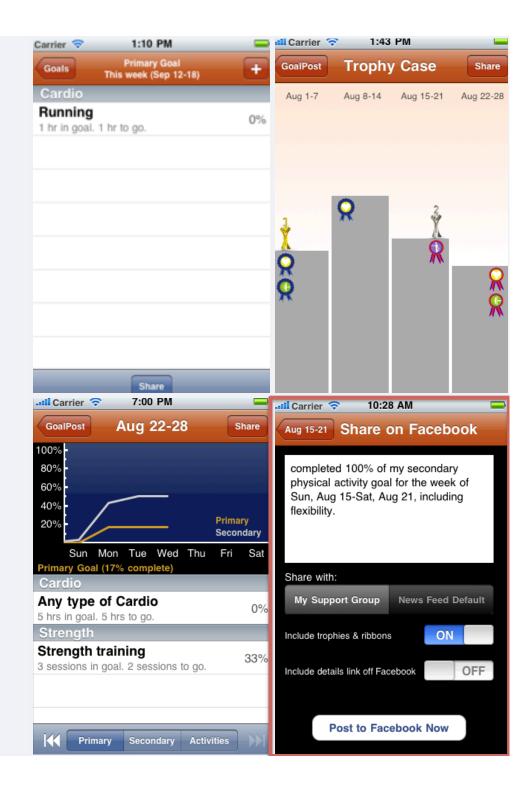
Intervention 2: Goal-setting & Self Monitoring for Physical Activity

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

GoalPost

ll Carrier ᅙ	6:56 PM GoalPost	Trophy Case
Strength SEC		
Walking PRI SEC	N/A	
	ry goal and 51% of	>
	ek: 100% of seconda d (no primary goal se	
Activities &	Goals	
Activity Jour Last activity: Yes		>
Goals		>
Report a pro	blem	>

manual @ smunson.com/talks/ubhave



GoalPost snaring		
all Carrier 🗢 10:21 AM 🚍		III Carrier 🗢 10:28 AM 📟
Aug 15-21 Share on Facebook	Aug 15-21 Share on Facebook	Aug 15-21 Share on Facebook
Select a message to use or edit:	completed 100% of my secondary	completed 100% of my secondary
completed 100% of my secondary physical activity goal for the week of Sun, Aug 15- Sat, Aug 21, including 100% of my flexibility.	physical activity goal for the week of Sun, Aug 15-Sat, Aug 21, including flexibility.	physical activity goal for the week of Sun, Aug 15-Sat, Aug 21, including flexibility.
completed 100% of my secondary physical activity goal for the week of Sun, Aug 15-Sat, Aug 21, including flexibility.	Share with:	Share with. My Support Group News Feed Default
completed 100% of my secondary physical activity goal for the week of Sun, Aug 15-Sat, Aug 21.	Q W E R T Y U I O P A S D F G H J K L	Include trophies & ribbons ON
	🖓 Z X C V B N M 💌	
[Create my own]	.?123 space Done	Post to Facebook Now



CoulDoct de quiere

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

Posted using GoalPost

📙 8 minutes ago via GoalPost · Comment · Like



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

12 with sharing, 11 without 21-49 years old

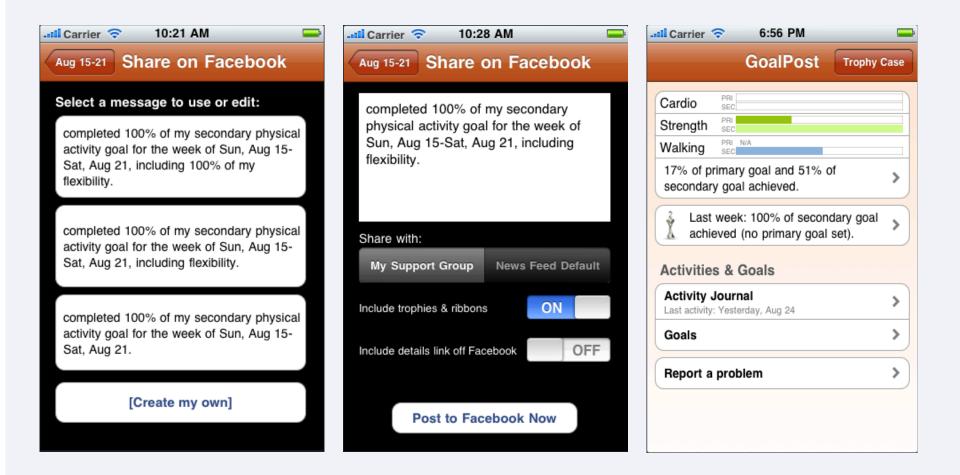
4+ week field trial

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



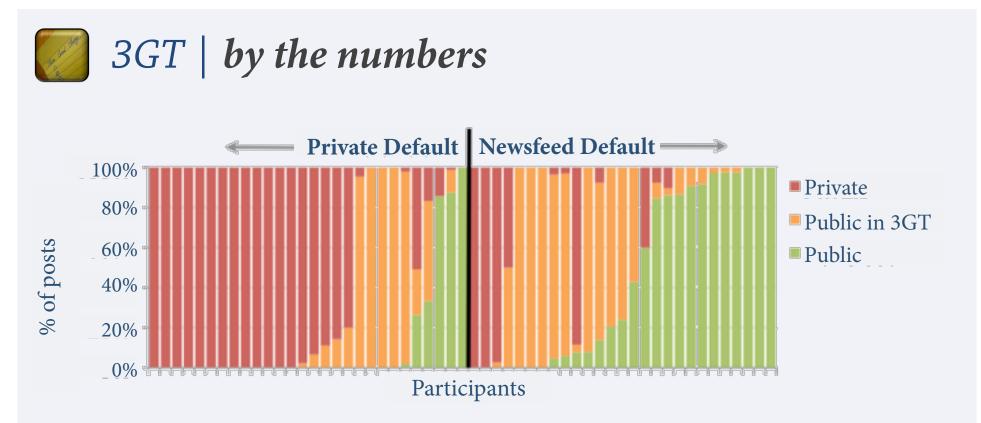
GoalPost

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.





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

No Impact on post frequency or retention.

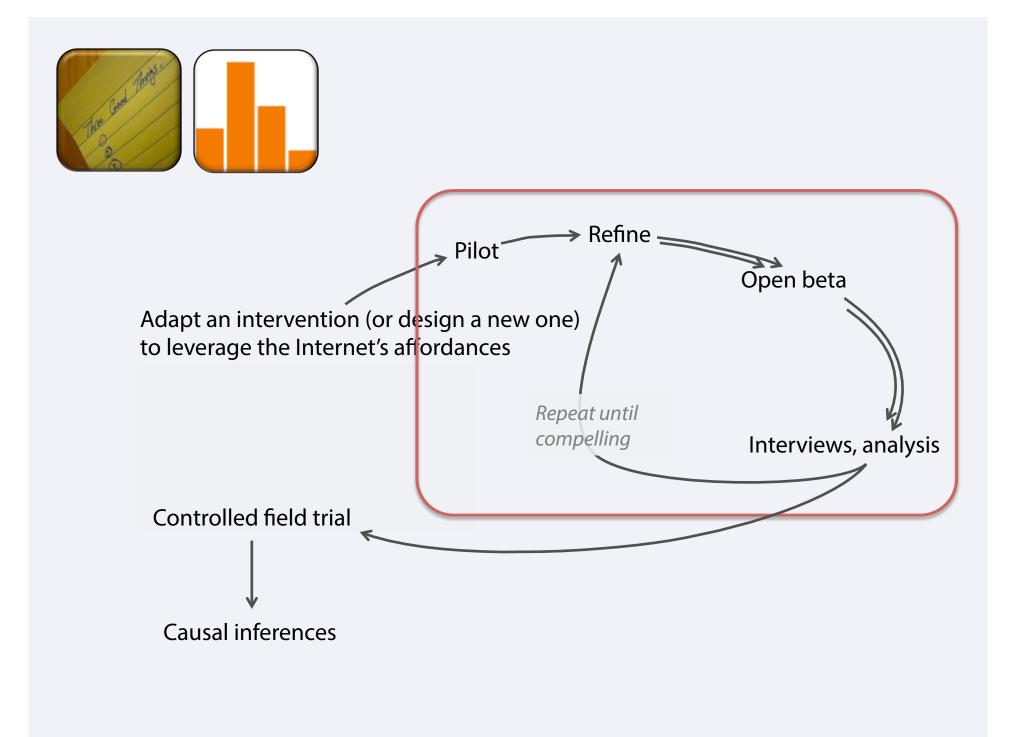


10 out of 12 shared at least once, but...

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



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

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

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.
R ESEARCHER:	Did it?
GOALPOST USER:	No. And I'm so discouraged.

BUT WANTING SOMETHING SOCIAL

of the 55 active 3GT participants...24 invited friends25 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

"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

GoalPost | sharing: support group

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*



... 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?

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



appropriate >> privacy "selfcasting"



3GT Social variation of positive psychology exercise around recording everyday good things.

facebook 🖄 🔎 🛞 Search	your <mark>friends</mark> using 3gt	Recent Good Things from You
Good Things Good thing: Why did this happen: (Always private) Privacy & publicity: Post to your Facebook newsfeed & visible to friends Post		April 18 1. another round of happy class nostalgia malcolm invited me, I moved my mee 2. 4.5hr of #si182 office hours makes mey the course has come. Nice job @presnic Eytan invited me; I had invited him wi April 16
	3gt from all friends invite friend	

Sean Munson	Post a Good Thing
logout	Good thing:
769 GOOD THINGS 0.8 PER DAY	Why it happened:
YOUR TOP GOOD THING WORDS 3gt alex aston day delicious dinner	Public: Post to Facebook wall: Post to Facebook wall: Post it!
finally fun good great hike last made more new night out run time up	Good Things You · Everyone
Your top Reason Words	Nancy Munson 0 cheers (Cheer) comments 10 hrs Got a very cool pair of running shoes that should be my Boston shoes! 10 hrs 10 hrs 10 hrs

threegthings.net



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 settir 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: ... if I succeed: {{Name}} didn't keep a Steps {{Name}} kept a Steps commitment. commitment. Whew, made it! :-(Push me to do better next week! I walked more than {{steps}} only I met my Steps goal by walking at {{actualdays}} this week, {{days least {{steps}} steps {{actualdays}} actual days}} than my commitment. this week. Make my commitment



Commit to Steps

A test of public commitments.

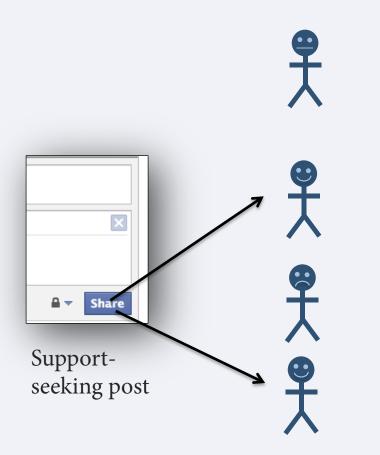
with Paul Resnick, Caroline Richardson, Erin Krupka, & Michelle Draska

1. Make your commitment. I will walk at least {{steps}} on {{days}} or more days this week. 2. Share. Change sharing settir 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: ... if I succeed: {{Name}} didn't keep a Steps {{Name}} kept a Steps commitment. commitment. Whew, made it! :-(Push me to do better next week! I walked more than {{steps}} only I met my Steps goal by walking at {{actualdays}} this week, {{days least {{steps}} steps {{actualdays}} actual days}} than my commitment. this week. Make my commitment

Additional future challenges

FeedRank algorithms

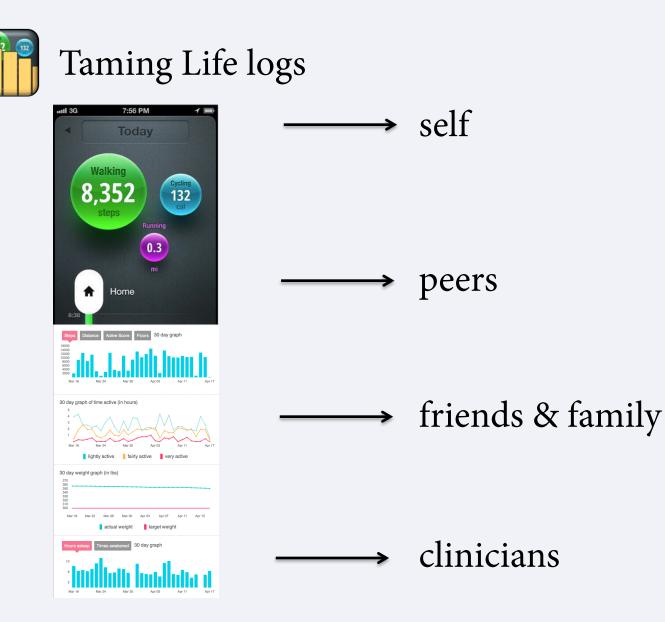
(Facebook already is doing this.)



Topic or need-based lenses

(e.g., Gilbert et al, *We Meddle*; Facebook lists, Google+ circles)

News · Mo	st Recent 🔻	faceb	00	< & i		s
Vic 📄 Sta	ost Recent tus Updates otos	B .		n Munsor My Profile	•	
∲] Lin ³ ¶ Pag 3 yc . It 3 CO		Filte			2 •	
ting 🖉 Ch nei 🖉 Far	at nily e another		sages ts		2 2 8	
¥ Edit Vyr I. vou can nov	Options v stream		ot Apo	nputing ocalypse ro Pro		

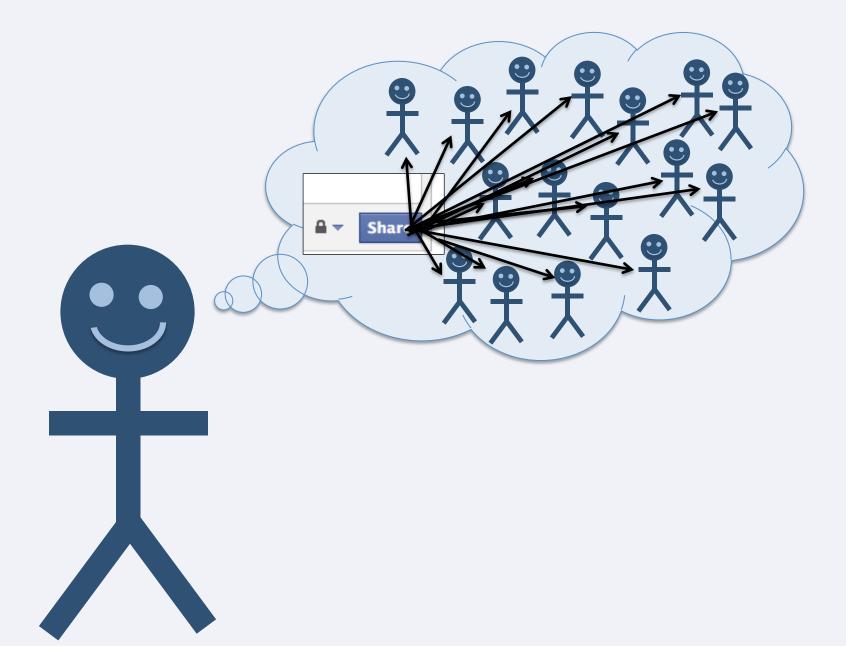


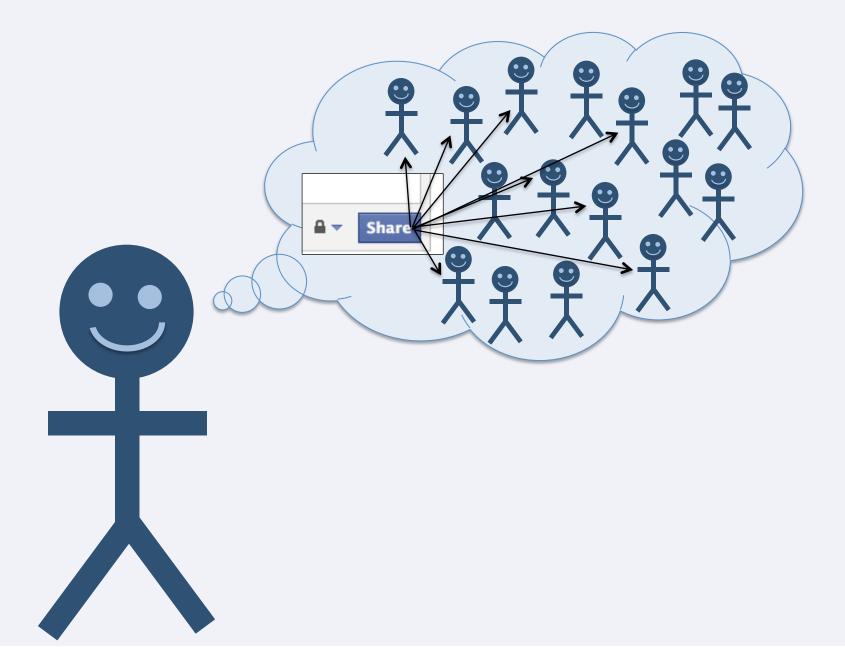
• Getting the **right content** in front of the **right people**.

Vall	Info	Photos	Boxes	+		
Wen	t for a ru	n and have	e lots of b	isters. I need to	change what	I am
					-	-
Note	2					
		ou are trvi	na to aet	advice. You mig	ht get a better	r reaction
lt loo	экѕ пке у	ou are try			-	
	make tha			e a subset of yo	our friends wit	h whom

In Q&A forums: Burke et al.

- Getting the **right content** in front of the **right people**.
- Coaching people on
 - Writing their posts.
 - Replying to others





- 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.

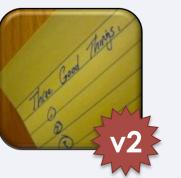


- Getting the **right content** in front of the **right people**.
- Coaching people on
 - Writing their posts.
 - Replying to others
- Helping users have correct **mental models** of the feed.
- **Rich profiles** that protect privacy and do not require substantial additional work.

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 offer 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
- Sensemaking & life logs

thanks!

Collaborators

Paul Resnick Mark W. Newman Margaret E. Morris Debra Lauterbach Caroline Richardson Sunny Consolvo Jeremy Canfield Brian Ford Peter Andrews Erin Krupka Allison Cole Daniel Epstein

Sean A. Munson

smunson@uw.edu @smunson

Funding

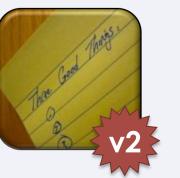
Intel sponsored research & PhD Fellowship University of Michigan Rackham Graduate Program – Research Grant

more at smunson.com/talks/ubhave

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 offer 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
- Sensemaking & life logs