

Social network activity and social well-being

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Facebook

facebook

social
computing
lab @ Carnegie Mellon

Does the Internet make you lonely?

Impact of technology on social well-being

Technology displaces

Americans' core social networks declining

Internet use displaces offline communication, increases stress, depression, loneliness

McPherson, Smith-Lovin, & Brashears, 2006; Putnam, 2001; Kraut, et al., 1998; Shklovski, Kraut, & Rainie, 2004; Bessièrè, Kiesler, Kraut, & Boneva, 2008; Waestlund, Norlander, & Archer, 2001

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Technology augments

Internet users have greater civic participation, are in more frequent contact with friends

Heavy Facebook users have higher levels of social capital, with greater gains for students with low self-esteem.

Hampton, Sessions, Her, & Rainie, 2009; Valenzuela, Park, & Lee, 2009; Wellman, Quan Haase, Witte, & Hampton, 2001; Ellison, Steinfeld, & Lampe, 2007; Steinfeld et al., 2008

Not all time online is equal

Solitaire

Decks

Background

Options

0:00

Score: 0

0 moves





Ben Bloom
time for some yoga.
Update Status

News Feed

Messages

Events

Photos

Friends

Applications

Games

Groups

Causes

Visual Bookshelf

More

Friends Online

Alex Wu

Alexandre Roche

Ben Barry

Chad Little

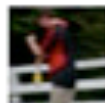
Everett Katigbak

See All

News Feed

Top News - Most Recent

What's on your mind?



Chad Little



Yesterday at 8:07pm via Facebook Mobile - Comment - Like - Share

Jerry Cain and 3 others like this.

Write a comment...



Blake Ross > Monica Walsh: Happy bday monica, hope you have a great one

4 hours ago - Comment - Like - See Wall-to-Wall



Makinde Adeagbo "To all Parisians: I take my cappuccinos dry."



Yesterday at 11:14pm via Facebook Mobile - Comment - Like - Share

Drew Hamlin oh this reminds me...



Ben Bloom

Requests

2 friends

Suggested

Edit Friends

Account Settings

Privacy Settings

Application Settings

Credits Balance

Help Center

Logout

Sponsored

Instantly upload photos



Send photos or videos to Facebook from your phone. Visit our Mobile Hub to activate your phone and MMS to your personal upload email.

Like - Neville Bowers, Mark Kinsey, and 7 other friends like this.

Events

See All

Reception in Palo Alto Now
Facebook Send-Off Thursday 5:30pm
Mark + Kristina's Engagement Party Friday 8:00pm

Monica Walsh's birthday Today
Mark Slee's birthday Friday

Connect

Chat (146)

Kinds of Facebook activities

Directed communication with another friend

Passive consumption of others' social news

Non-social activities

(e.g., messages in/out, wall posts, likes, comments, distinct friends communicated with)

 Kat Martin likes this.

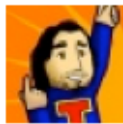
Messages

Mark as Unread

Report Spam

Delete

Select: All, Read, None



Turadg Aleahmad
March 31 at 8:45am

Hulu - infoMania: L
so good



Donna Meeds
March 26 at 11:33pm

Hi from Portland
When you say next



Andy Schlaikjer
March 24 at 12:54am

pics from party!
I'll have to wait for

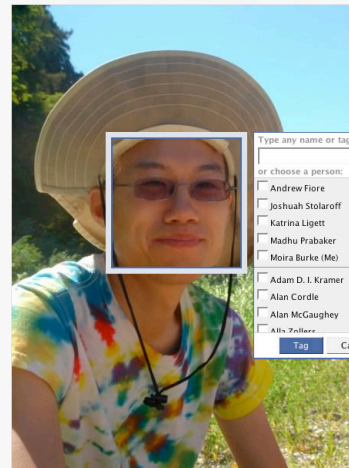


Nels Beckman Hey, I had a great time at the Mike Doughty show last night. Thanks for letting me tag along!

October 9, 2009 at 9:01am · [Comment](#) · [Like](#) · [See Wall-to-Wall](#)

Click on people's faces in the photo to tag them.

Done Tagging



Kinds of Facebook activities

Directed communication with another friend
Passive consumption of others' social news
Non-social activities

(e.g., feed stories clicked,
profiles viewed, photos viewed)

The screenshot displays a Facebook News Feed interface. At the top, it says "News Feed" and "Top News · Most Recent". Below this is a search bar with the text "What's on your mind?". The feed contains several posts:

- A post by **Cliff Lampe** with the text "C'mon Butler, hang in there!". It was posted "Yesterday at 10:44pm" and has options for "Comment" and "Like". Below the post is a button to "View all 4 comments".
- A comment by **Julia Grace** with the text "LOL yea it was tough times. I'm still cryin' on the inside...". It was posted "Yesterday at 11:18pm".
- A post by **Erika June Christina Laing** with the text "commented on Todd Keeps's link." and a link titled "This is why you're fat. - The Bacon Mug A giant mug made out of bacon..." from "thisiswhyyourefat.com". The post includes a photo of a large, bacon-wrapped mug. It was posted "Yesterday at 11:30am" and has "3 people like this." and a button to "View all 7 comments".
- A comment by **Erika June Christina Laing** with the text "i'd eat that if you filled it with peanut butter". It was posted "Yesterday at 11:30am".

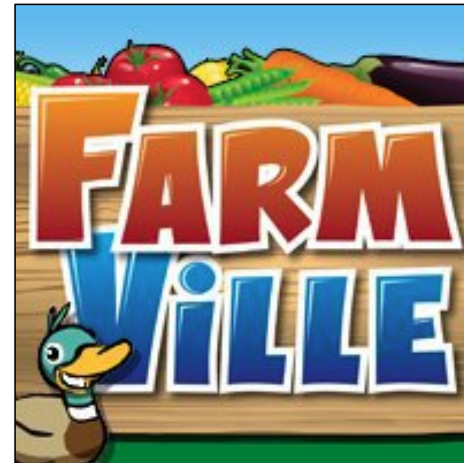
Kinds of Facebook activities

Directed communication with another friend

Passive consumption of others' social news

Non-social activities

(e.g., time spent playing games and quizzes)



Directly interacting with friends



Social well-being

Passively consuming social news

Well-being measures

Williams, 2006; Ellison, et al., 2007; Russell, 1996

Bridging social capital: access to new information through diverse acquaintances

“I come in contact with new people all the time.”

“Interacting with people makes me want to try new things.”



Well-being measures

Williams, 2006; Ellison, et al., 2007; Russell, 1996

Bridging social capital: access to new information through diverse acquaintances

“I come in contact with new people all the time.”

“Interacting with people makes me want to try new things.”

Bonding social capital: emotional support from close friends

“There are several people I trust to help solve my problems.”

“If I needed a very large emergency loan, I know someone I can turn to.”



Well-being measures

Williams, 2006; Ellison, et al., 2007; Russell, 1996

Bridging social capital: access to new information through diverse acquaintances

“I come in contact with new people all the time.”

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Bonding social capital: emotional support from close friends

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“If I needed a very large emergency loan, I know someone I can turn to.”

Loneliness: difference between desired and actual social interaction



“I often feel that there are people I can talk to.”

“I often feel isolated from others.”

Hypotheses

Directed communication

(e.g., messages in/out, wall posts, likes, comments, distinct friends communicated with. scale $\alpha = 0.94$)

H1. **Bonding** social capital will increase with directed communication.

H2. **Loneliness** will decrease with directed communication.

Passive consumption

(e.g., feed stories clicked, profiles viewed, photos viewed, distinct friends' news/photos/profiles consumed. scale $\alpha = 0.86$)

H3. **Bridging** social capital will increase with consumption.

H4. **Loneliness** will be associated with consumption.

Method

Survey of 1193 English-speaking, adult Facebook users around the world recruited through Facebook ad.

Paired two months of site activity data with survey responses.

Subset (n=155) also completed Facebook intensity scale (*see paper*).

Sensitivity analyses on friend-count buckets.

Controls

- age
- gender
- country
- in relationship
- self-esteem (Rosenberg, 1989)
- life satisfaction (Diener, et al., 1997)

Results: Overall site use

Overall, greater Facebook use* is associated with greater well-being:

- higher bonding social capital ($p < .001$)
- higher bridging social capital ($p < .001$)
- lower loneliness ($p < .01$)

Results generalize to [non college-age users](#) (n=487 over age 35) and those [outside the US](#) (n=993 from South Africa, New Zealand, Great Britain, Ireland, Canada, and 15 others).

* time on site, friend count, “broadcast” content produced (e.g., status updates, photos)

Results

	Bridging	Bonding	Loneliness
Intercept	3.90 ***	3.80 ***	2.50 ***
Age	0.00	-0.01 **	0.00
Male	-0.02	-0.10 *	0.08 *
In relationship	-0.11 **	-0.05	-0.09 *
Self-esteem	0.23 ***	0.30 ***	-0.53 ***
Life satisfaction	0.02	0.10 ***	-0.16 ***
Time on site (log2)	0.00	0.06	-0.04
Friend count (log2)	0.14 ***	0.09 *	-0.07 *
Content production	0.07	-0.09 .	0.04
Directed communication	0.08 .	0.11 *	-0.11 *
Consumption	-0.10 *	-0.09 .	0.15 ***

Demographic and personal controls

*** p < .001

** p < .01

* p < .05

. p < 0.1

5-pt Likert scale responses

Results

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Directed communication	0.08 .	0.11 *	-0.11 *
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Overall site engagement

*** p < .001

** p < .01

* p < .05

. p < 0.1

5-pt Likert scale responses

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Facebook activities

*** $p < .001$

** $p < .01$

* $p < .05$

. $p < 0.1$

5-pt Likert scale responses

Results: Facebook activities

Directed communication

- ✓ H1. **Bonding** social capital increases with directed communication.
 - ✓ H2. **Loneliness** decreases with directed communication.
- No relationship with bridging social capital.

	Bridging	Bonding	Loneliness
Directed communication	0.08.	0.11*	-0.11*
Passive consumption	-0.10*	-0.09.	0.15***

*** p < .001

** p < .01

* p < .05

. p < 0.1

Results: Facebook activities

Consumption

- ~~H3.~~ Bridging social capital will increase with consumption.
People felt less access to new ideas and diverse friends the more content they consumed.

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Directed communication	0.08.	0.11*	-0.11*
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*** p < .001


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. p < 0.1

Results: Facebook activities

Consumption

 H3. **Bridging** social capital will increase with consumption.
People felt less access to new ideas and diverse friends the more content they consumed.

 H4. **Loneliness** will be associated with consumption.
People felt lonelier the more content they consumed.

No relationship with bonding social capital.

	Bridging	Bonding	Loneliness
Directed communication	0.08.	0.11*	-0.11*
Passive consumption	-0.10*	-0.09.	0.15***

*** $p < .001$

** $p < .01$

* $p < .05$

. $p < 0.1$

Current work

- Determining causality through longitudinal panel design.
- Recruiting new waves of participants to account for ad-based response bias.
- Including tie strength in passive consumption analysis.
- Identifying impact of personality and individual differences (e.g., social skills and communication comfort).

Summary

- Not all social networking site activities are equal:
 - **Direct communication** with friends is associated with greater bonding social capital and lower loneliness.
 - **Passive consumption** of social news is associated with lower bridging social capital and greater loneliness.

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Bonus slides

Non-response bias

Participants were recruited through an ad on Facebook.

A comparable sample of 1200 users was randomly selected from English-speakers who had used the site in the past month.

Survey takers:

- were slightly **older** (M=33.7 vs. 33.0 years, $p < .05$)
- spent **more time** on the site (M=1.7 hours per day vs. 0.5, $p < .001$ for $\log_2(\text{minutes})$)
- had **more friends** (M=185.6 vs. 170.0, $p < .001$),
- were more likely to be **women** ($p < .001$)
- more likely to be from **outside the U.S.** ($p < .001$).

Facebook intensity scale

(Ellison, Steinfeld, & Lampe, 2007; Steinfeld et al., 2008)

- About how many total Facebook friends do you have?
- In the past week, on average, approximately how many minutes per day have you spent on Facebook?
- Facebook is part of my everyday activity
- I am proud to tell people I'm on Facebook
- Facebook has become part of my daily routine
- I feel out of touch when I haven't logged onto Facebook for a while
- I feel I am part of the Facebook community
- I would be sorry if Facebook shut down

Results: Validating Facebook intensity scale

People are generally good at reporting **friend count** ($r=.96$) and **time on site** ($r=.45$).

But **attitude questions** (“Facebook has become part of my daily routine”) not strongly correlated with any plausible engagement metrics like content production ($r=.14$) or return visits in past month ($r=.14$).

Self-reports subject to acquiescence and central tendency biases. But server data don't explain engagement.