Social network activity and social well-being

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Carnegie Mellon University

Cameron Marlow and Thomas Lento
Facebook
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; Bessière, Kiesler, Kraut, & Boneva, 2008; Waestlund, Norlander, & Archer, 2001
Impact of technology on social well-being

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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
What's on your mind?

Chad Little

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...
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)
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)
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

Passively consuming social news

Social well-being
Well-being measures

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.*”
“*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.*”

**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

<table>
<thead>
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<tbody>
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<td><strong>Intercept</strong></td>
<td>3.90 ***</td>
<td>3.80 ***</td>
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</tr>
<tr>
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<td>0.00</td>
<td>-0.01 **</td>
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</tr>
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<td>Male</td>
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<tr>
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*** p < .001  ** p < .01  * p < .05  . p < 0.1

5-pt Likert scale responses

Demographic and personal controls
## Results

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5-pt Likert scale responses

Overall site engagement
## Results

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5-pt Likert scale responses

Facebook activities
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.

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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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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.

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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.

Thanks to Nicole Ellison, Adam Kramer, Bob Kraut, Cliff Lampe, Sheila Normile, Meg Sloan, Facebook Data and Market Research Teams. NSF IIS-0325049, IIS-0729286, NSF GRFP.

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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 log2(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
People are generally good at reporting friend count \( (r=0.96) \) and time on site \( (r=0.45) \).

But attitude questions (“Facebook has become part of my daily routine”) not strongly correlated with any plausible engagement metrics like content production \( (r=0.14) \) or return visits in past month \( (r=0.14) \).

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