Social Comparison
And the Book of Faces

CS 224C: NLP for Computational Social Science
Zehua Li
What is *Social Comparison*?

The process of thinking about information about one or more other people in relation to the self.

*Wood, Joanne V. What is social comparison and how should we study it? Personality and social psychology bulletin 22, no. 5 (1996): 520-537.*
Social comparison can have positive or negative outcomes—inspiring people to exercise or change careers, or upsetting them when aspirations feel unattainable.
A person’s propensity for social comparison mediates the link between social media use and lower well-being. In one study, people with higher social comparison orientation reported spending more time on Facebook and being more negatively affected by what they saw there than people with lower social comparison orientation.
Research Objective

Social Comparison and Facebook: Feedback, Positivity, and Opportunities for Comparison

Moira Burke*  
Facebook  
mburke@fb.com

Justin Cheng*  
Facebook  
jcheng@fb.com

Bethany de Gant  
Facebook  
bethanyd@fb.com

Better understand social comparison **worldwide** and the range of associated behaviors on social media.
Research Design

Collect data from voluntary survey (predicted variable) + activity logs.

Participants
Participants (N=37,729; 52% female; mean age 33.4) were recruited via an ad on Facebook targeted at a random sample of people in 18 countries: Brazil, Germany, Denmark, France, Great Britain, Indonesia, India, Japan, Korea, Mexico, Norway, Philippines, Sweden, Singapore, Thailand, Turkey, the United States, and Vietnam. Compared to people who were active on Facebook each month, respondents were on average 0.5 years older, 8% more likely to be female, and had 52% more friends (all comparisons \( p < 0.001 \)). To account for these differences, regression analyses control for country, gender, age, friend count and overall time spent, except where noted.
Research Design

Collect data from voluntary survey (predicted variable) + activity logs.

Sarah Bitter: The most appealing aspect of this study to me is its inclusion of so many participants from a variety of countries (almost 40,000 participants from 18 countries).

Participants

Participants (N=37,729; 52% female; mean age 33.4) were recruited via an ad on Facebook targeted at a random sample of people in 18 countries: Brazil, Germany, Denmark, France, Great Britain, Indonesia, India, Japan, Korea, Mexico, Norway, Philippines, Sweden, Singapore, Thailand, Turkey, the United States, and Vietnam. Compared to people who were active on Facebook each month, respondents were on average 0.5 years older, 8% more likely to be female, and had 52% more friends (all comparisons $p < 0.001$). To account for these differences, regression analyses control for country, gender, age, friend count and overall time spent, except where noted.
Why is it important to study people from various countries?

What are some other factors one should consider when choosing the survey population?
Research Design

Collect data from voluntary survey + activity logs.

Run regression to assess the strength of the relationship between observed characteristics and social comparison.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Base Model</th>
<th>Model b</th>
<th>Model c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.06 [-0.09, -0.03] ***</td>
<td>-0.06 [-0.09, -0.03] ***</td>
<td>-0.07 [-0.09, -0.04] ***</td>
</tr>
<tr>
<td>Age (years)</td>
<td>-0.12 [-0.14, -0.11] ***</td>
<td>-0.13 [-0.14, -0.11] ***</td>
<td>-0.13 [-0.14, -0.12] ***</td>
</tr>
<tr>
<td>Is female</td>
<td>-0.02 [-0.04, 0.00]</td>
<td>-0.02 [-0.04, 0.00]</td>
<td>-0.02 [-0.04, 0.00]</td>
</tr>
<tr>
<td>Country (not shown)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friend count</td>
<td>0.10 [0.09, 0.11] ***</td>
<td>0.10 [0.09, 0.11] ***</td>
<td>0.08 [0.07, 0.09] ***</td>
</tr>
<tr>
<td>Time spent</td>
<td>0.02 [0.01, 0.03] ***</td>
<td>0.04 [0.02, 0.05] ***</td>
<td>0.04 [0.03, 0.06] ***</td>
</tr>
<tr>
<td>Feed posts viewed</td>
<td>-0.02 [-0.04, -0.01] ***</td>
<td>-0.01 [-0.03, 0.00]</td>
<td></td>
</tr>
<tr>
<td>Prop. social posts viewed</td>
<td>0.05 [0.04, 0.07] ***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. A series of regressions was run to understand the relationship between feelings of social comparison and Facebook use. The base model controls for age, gender, country, friend count, and overall time spent. To understand the impact of a relevant variable such as the proportion of posts viewed that were social, an additional relevant control variable (feed posts viewed) was first added (Model b), and then Model c presents the addition of the variable of interest (proportion of social posts). All subsequent models in the paper follow a similar formula: Base model + relevant controls (specified in the paper) + variable of interest. (*** p < 0.001, ** p < 0.01, * p < 0.05).
Research Design

Collect data from voluntary survey + activity logs.

Run regression to assess the strength of the relationship between observed characteristics and social comparison.

Nourya Cohen: I would add that there's probably less data to be found on the people who are not active Facebook users at all, and maybe just check in once a month or so. I don't have the exact numbers, but I would assume that's probably most Facebook users at this point.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Base Model</th>
<th>Model b</th>
<th>Model c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>β</td>
<td>CI</td>
<td>β</td>
</tr>
<tr>
<td>Age (years)</td>
<td>-0.12</td>
<td>[-0.14,-0.11]</td>
<td>***</td>
</tr>
<tr>
<td>Is female</td>
<td>-0.02</td>
<td>[-0.04,0.00]</td>
<td></td>
</tr>
<tr>
<td>Country (not shown)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friend count</td>
<td>0.10</td>
<td>[0.09,0.11]</td>
<td>***</td>
</tr>
<tr>
<td>Time spent</td>
<td>0.02</td>
<td>[0.01,0.03]</td>
<td>***</td>
</tr>
<tr>
<td>Feed posts viewed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prop. social posts viewed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. A series of regressions was run to understand the relationship between feelings of social comparison and Facebook use. The base model controls for age, gender, country, friend count, and overall time spent. To understand the impact of a relevant variable such as the proportion of posts viewed that were social, an additional relevant control variable (feed posts viewed) was first added (Model b), and then Model c presents the addition of the variable of interest (proportion of social posts). All subsequent models in the paper follow a similar formula: Base model + relevant controls (specified in the paper) + variable of interest. (*** p < 0.001, ** p < 0.01, * p < 0.05).
Hypotheses

1. Frequency of social comparison on Facebook is positively correlated with: (a) time spent on Facebook; (b) network size; and (c) the proportion of content people view coming from friends or friends-of-friends.
2. People who see a greater proportion of posts with high feedback report more social comparison.
3. People who see a greater proportion of positive emotion in their News Feeds report more social comparison.
4. People who spend a greater proportion of time looking at profiles (and in particular, their own profile) report more social comparison.
5. People who view a larger proportion of social media content from demographically-similar others experience social comparison more often.
6. People who view a greater proportion of content from acquaintances rather than close friends experience social comparison more often.
7. Frequency of social comparison on social media decreases with age.
8. Women experience social comparison more often than men.
Hypotheses

H1: ⌛, 👥, 📚

H2: ❤️, 🌞

H3: 📚

H4: ⌛

H5: 📚

H6: 📚

H7: 😞

H8: 😞 > 😞
More Hypotheses?

H1: 👈👇 Social Comparison • ⏳ Time spent on FB • 👥 Friends • ☀️ Positivity

H2: ❤ Popularity 🕵️‍♀️ Check profile 😊 Acquaintance 🤴 BFF

H3: 👫 Similar demo 🌒 Different demo 😊 FB Posts

H7: ⬇️ ➔

H8: ⬇️ ➔ > ⬇️ ➔
Figure 2. Relationship between social comparison frequency and demographic and activity variables. Bars indicate standardized regression coefficients described in the text. The variables most strongly associated with social comparison are country, younger age, high friend count, viewing proportionally more positivity and less negativity, and viewing more feedback on others’ posts.
Findings

H1a: time spent browsing Facebook

H1b: size of social network

H1c: proportion of social content

H2: proportion of popular posts

H3: proportion of positive posts

H4: time spent viewing profiles

H6: proportion of posts from close friends

Relationship to social comparison (std. regression coefficient)
### H5: Similar demographics — mixed results

<table>
<thead>
<tr>
<th>Posts from similar age</th>
<th>Profile of similar age</th>
<th>Stories of similar age</th>
</tr>
</thead>
</table>

- People who view a larger proportion of social media content from others with similar **age** experience social comparison more often.

<table>
<thead>
<tr>
<th>Stories of same gender</th>
<th>Profile of same gender</th>
<th>Posts from same gender</th>
</tr>
</thead>
</table>

- No relationship between the proportion of people someone saw of their own **gender** in their News Feed. In profiles and Stories, there was some evidence of a positive relationship.
H5: Similar demographics — mixed results

- Posts from similar age
- Profiles of similar age
- Stories of similar age
- Stories of same gender
- Profiles of same gender
- Posts from same gender

People who view a larger proportion of social media content from others with similar age experience social comparison more often.

No relationship between the proportion of people someone saw of their own gender in their News Feed. In profiles and Stories, there was some evidence of a positive relationship.

Xiaoyuan Ni: The study revealed how the product and interface design could improve user experiences through being less affected by social comparison.
H7: Age

Frequency of social comparison on social media decreases with age.

The younger you are, the more often you experience social comparison.
No matter how you slice it, by age, race, or gender, life satisfaction fell significantly for every group of young Americans between 2010 and 2017.

Changes in Life Satisfaction, 2010-2017

Among 18-29 year olds
- Women
- Men
- Hispanic
- Black
- Asian
- Other Race

While the rise of Trump is a key part of this story, these trends were in motion before he announced his run.

Expanded social media use and an increased awareness of police violence may account for the initial decrease in the early 2010s.

Changes in Life Satisfaction Before Trump (2010-2014)
H8: Gender

In a regression controlling for age and country, there was no difference between women and men in reported frequency of social comparison.
Roberto Lobato Lopez: Their follow-up paper shows said [country-level gender] differences and they have such a high variance that I wonder what is the point of the aggregated analysis. There is a big difference between “there's no difference of social comparison effect by gender” and "there is a BIG difference of social comparison effect by gender by country.”
Fig. 3. In many parts of Asia, particularly India, men reported experiencing more frequent social comparison than women. In other parts of the world, particularly the UK and US, women reported experiencing it more frequently than men. Lighter bars indicate cases where 95% credible intervals include zero.
Now that we know what factors correlate with social comparison and to what extents, the authors proposed several measures to mitigate its harmful effects.

**Comparison Reduction:** hide feedback counts, filter triggering content & raise intentionality.

**Harm Reduction:** support well-being, educate, normalize sharing difficult moments & inspire.

**What measures should we take to mitigate comparison's harmful effect?**

**What are some factors that we should take into consideration when weighing these measures?**
Social Influence

- Emotion Contagion
- Strong Tie v. Weak Tie
- Social Comparison
Emotion Contagion
Strong Tie v. Weak Tie
Social Comparison
Emotion Contagion

Strong Tie v. Weak Tie

Social Comparison
... Facebook was selected as a platform for its size and variety of experiences, but other social media platforms may differ in the size and type of networks people cultivate, the synchronicity of communication, and the comparison-inducing topics that people share. Thus, **not all results may generalize to other platforms.**
... Facebook was selected as a platform for its size and variety of experiences, but other social media platforms may differ in the size and type of networks people cultivate, the synchronicity of communication, and the comparison-inducing topics that people share. Thus, not all results may generalize to other platforms.
Research Design: Meta, Twitter

How to take advantage of these changes and evaluate the effect of social comparison and its mitigation measures on Instagram or Twitter, as an insider? As an outsider?

In Italy, Japan, Australia ...

05/2021

12/2022
Figure 2. Relationship between social comparison frequency and demographic and activity variables. Bars indicate standardized regression coefficients described in the text. The variables most strongly associated with social comparison are country, younger age, high friend count, viewing proportionally more positivity and less negativity, and viewing more feedback on others’ posts.
Findings

H1: 🕒 😊 ✓, ✓

H2: 🎁 ✓, ✓

H3: 📚 ☀ ✓ ✓

H4: 🕒 ✓

H5: 📚 😊 ✓

H6: 🕒 ❌

H7: ⏱️

H8: 😞 😊 ❌

Time spent on FB  Friends  Positivity
Check profile  Acquaintance  BFF
Similar demo  Different demo  FB Posts

Introduction  Research Design  Findings  Discussion