

From Tweeps to Coauthors: A Case Study of Collaborating via Twitter

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University of Saskatchewan

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Children's Hospital of Philadelphia

- This is a story of two tweeps (twitter friends, mutual followers) who become collaborators and conduct a study
- Specifically, we conducted a study of the impact of open data policies on consent rates, using twitter for recruitment

The image is a screenshot of a Twitter profile page for Jordan Cummings. At the top left, the University of Saskatchewan logo and name are visible. The profile picture shows a woman with long brown hair. The name 'Jordan Cummings' is displayed in large white text, with the handle '@jordenc_phd' below it. The bio reads: 'psychopathology, relationships, psychotherapy, and progress in the lab. Tweets reflect my thoughts, not my employer's'. The location is 'Saskatoon, SK, Canada' and the website is 'stressandwellnesslab.com'. Below the bio, there are statistics: 'TWEETS 1,399', 'FOLLOWING 373', and 'FOLLOWERS 108'. An 'Edit profile' button is located to the right of these statistics. At the bottom right of the profile header, the website 'www.usask.ca' is listed.

TWEETS	FOLLOWING	FOLLOWERS
1,399	373	108

I am an Assistant Professor of Psychology at the University of Saskatchewan. I broadly study the bidirectional relationship between interpersonal relations and psychopathology. This includes the therapeutic alliance, friendship dyads, parent-child dyads, supervisor-supervisee relationships and strangers. I study these within social anxiety, trauma, and depression using a variety of methods. I am also a practicing clinical psychologist working with children and adults.

UNIVERSITY OF SASKATCHEWAN



T. Eugene Day
@EugeneDayDSc FOLLOWS YOU

Systems Engineer. Senior Improvement Advisor and Principal Investigator with The Children's Hospital of Philadelphia. Tweets are personal, not official.
Philadelphia, PA, USA

TWEETS	FOLLOWING	FOLLOWERS
521	182	126

 [Following](#)

www.usask.ca

Gene is a DSc who works at the Children's Hospital of Philadelphia. He studies quality improvement and patient flow, as well as care delivery. He is fundamentally a methodologist who uses computer simulation to study how to deliver timely high quality medical care. He is also an adjunct assistant professor in the Medical School at Brown University.

**Twitter allows scientists to connect
and discuss/develop ideas.**

Twitter “Virtual Departments”

- Increased **speed & breadth** compared to traditional networking (Darling et al., 2013)
- **1 in 40** scientists is twitter active (Priem et al., 2012)
- On average, scientist’s twitter followings **7x larger** than average academic department (Darling et al., 2013)

Study Background & Prompt

- In December 2013, Public Library of Science (PLOS) announced new open data policy for **all publications in PLOS One**, beginning in March 2014
- This was a popular topic of conversation amongst our twitter community as it was being implemented

Open Data is defined by Open Knowledge Foundation as “freedom to use, reuse, and redistribute without restrictions beyond a requirement for attribution and share-alike” (Molloy, 2011, p. 1).

Conversation Sparking Study Design

[redacted]

**However, it is important to
remember conversations are
public.**

Tweeting Ideas & Scooping Concerns

“One **concern** about sharing ideas on social media is that **they might be ‘scooped’** before they are published by their rightful owners in peer-reviewed journals... However, tweeting... can provide a ‘time stamp’ for ideas that are yours.”

(Darling et al., 2013, p. 36; Also see Ogden, 2013)

Things on twitter move fast.

Project Timeline

MARCH 2014

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
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APRIL 2014

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Another advantage to twitter is the speed of conversation. Our use of twitter significantly reduced the time needed to recruit participants. (And our motivation to get this project done as quickly as possible helped!)

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APRIL 2014

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March 4 – Start design via Gmail & Twitter DM

Project Timeline

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APRIL 2014

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March 10 – Ethics application submitted

Project Timeline

MARCH 2014

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March 17 – Ethics approval received

Project Timeline

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APRIL 2014

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March 20 – Qualtrics survey completed

Project Timeline

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APRIL 2014

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March 24 – First tweets sent

We sent multiple tweets on the first day of study, and I will show you the data for responses in a minute

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April 5 – Data cleaned



Project Timeline

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May 9 – Data analyzed, thematic analysis in progress

Twitter is also a busy place.

Getting “Seen” in a Sea of Tweets

- **@jordenc_phd** and **@EugeneDayDSc** together have **254 followers**
- A busy twitter feed can leave much unnoticed!
- We approached tweeps **ahead of time** to ask if they would **RT** our study

Together, our professional twitter accounts have 254 followers, which is not necessary a high number. Depending on how many tweeters one follows, one’s twitter feed can be very busy. For example, I usually only catch up on the past hour or so of tweets when I log on. If one is following a lot of people, an hour might include a lot of tweets. In addition, we knew our study would not look particularly interesting given the deception. So we approached some of our tweeps ahead of time, asking them to RT the study. We strategically chose some of these because of their high number of followers who would see the tweets

Initial Study Tweet



Jordan Cummings @jordenc_phd · Mar 24

Bonus cool points for our study: @EugeneDayDSc & I are collaborating tweeps. Never met the guy! #twitterscience usaskssrl.qualtrics.com/SE/?SID=SV_1N3...

Expand

Reply Delete Favorite More



Jordan Cummings @jordenc_phd · Mar 24

Looking for participants for a quick (<10mins) study! Please participate/RT: usaskssrl.qualtrics.com/SE/?SID=SV_1N3...

Expand

Reply Delete Favorite More

Research Ethics Board approved
tweet

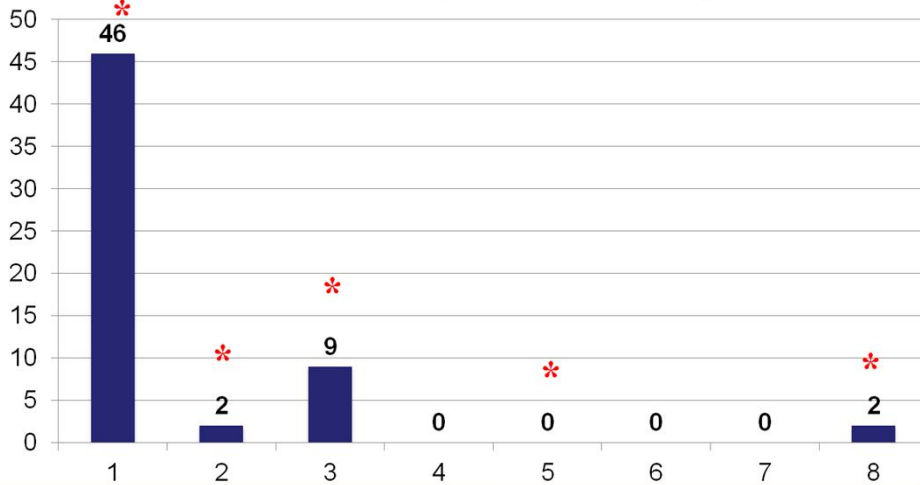
This is the first tweet (and my follow up tweet) that we sent about the study. As part of our ethics approval, this specific tweet was approved. In many ways I consider this a disadvantage to research via twitter – once agreed with the U of S ethic’s boards, we couldn’t use any other tweets to promote the study. Also given the limit of 140 characters per tweet, you need to make sure your recruitment can be expressed in that length of tweet. Although you can use multiple tweets to promote an idea, some of them might get lost in the shuffle (so to speak). Later I sent additional tweets but did not include the link (e.g, “This study actually took most people <5mins)

The image shows a screenshot of a tweet from T. Eugene Day (@EugeneDayDSc). The tweet text is: "Looking for participants for a quick (<10mins) study! Please participate/RT: usaskssrl.qualtrics.com/SE/?SID=SV_1N3...". Below the text are interaction buttons: Reply, Retweet, Favorite, and More. The tweet shows 35 retweets and 4 favorites. A callout box with an arrow points to the number 35, containing the text "35 Retweets (RTs) from initial tweet from @EugeneDayDSc". The tweet is dated 11:40 AM - 24 Mar 2014. The footer of the image contains the URL www.usask.ca.

Here is the first tweet from Gene's account – as you can see it was RTed by followers 35 times. After being RTed the study link would then be seen by the followers of those users who RTed it

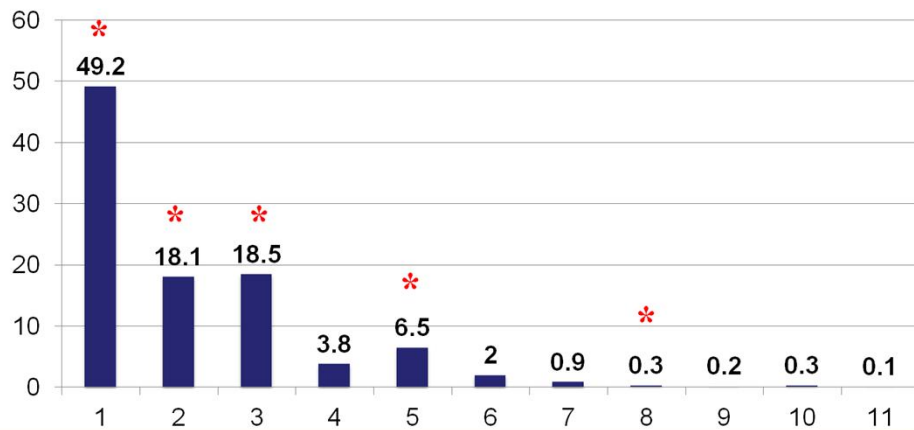
**There may be quickly diminishing
returns.**

Number of RTs by Study Day



This graph represents the number of RTs our tweets received across the 8 days of study that we had the project “active” on twitter. The red asterisk represent days where either Gene or I (or both of us) sent out a tweet about the study. As you can see the vast majority of RTs were sent out on Day 1, and very few RTs were sent out on subsequent days.

% of Sample Accessing by Day



This graph represents the % of the overall sample that access our link by Study day. Again the asterisk represent days that either Gene or I sent out a tweet about the study. Because we were no longer receiving new participants, we stopped tweeting about the study on Day 8. We probably could have stopped sooner.

You can see a sharp downward curve of diminishing access. Research on multiple reminders in email-based recruitment indicates that reminders can double recruitment, but that amongst those receiving the most reminders, there was a decrease in participation, possibly due to saturation (no one notices anymore) or resistance (potential participants have been annoyed)



T. Eugene Day
@EugeneDayDSc



Following

Looking for participants for a quick (<10mins) study! Please participate/RT:

usaskssrl.qualtrics.com/SE/?SID=SV_1N3...

Reply Retweet Favorite More

RETWEETS

35

FAVORITES

4



11:40 AM - 24 Mar 2014

- We were RTed **59 times**, reaching at least **~134,000 followers***
- # of followers ranged from **24** to **52,700**
- 46 (**78%**) of those RTs were on **Day 1**

****this is an underestimate***

www.usask.ca

Response Rate

= 21% response
rate

906 (clicked
link)

89 (started
but dropped
out)

189
(completed
study)

Overall, we had a 21% response rate

Response Rate

Meta-analysis, 39.6% response rate ($SD = 19.6\%$)
(Cook et al., 2000)

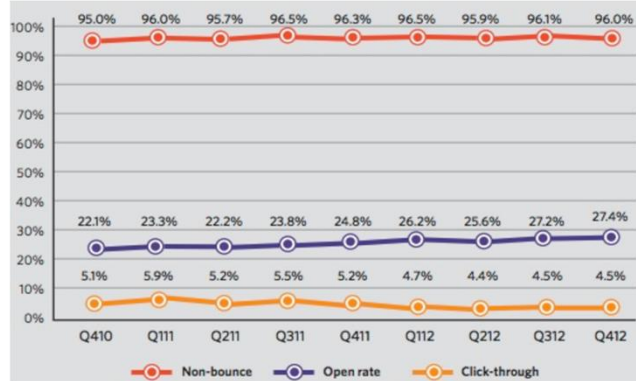
906 (clicked
link)

89 (started
but dropped
out)

189
(completed
study)

In a meta-analysis of response rates to online surveys, Cook and colleagues reported an almost 40% response rate, which is considerably larger than ours. Given that internet technology develops so quickly and that this study is now 14 years old, it is unclear how applicable this response rate is today.

Email Marketing Response Rates



Epsilon Email Marketing Research Center

Retrieved: www.smartinsights.com/email-marketing/email-communications-strategy/statistics-sources-for-email-marketing/

www.usask.ca

Research from email marketing shows a similar response rate to ours. This purple bar represents the number of users who opened a link they received in an email and is between 22 and 27%. The click through rate (people who actually responded to the link) is much lower

**Twitter can be a valuable means of
disseminating research outcomes.**

Twitter for Dissemination

Passive Dissemination:

- Waiting for research to be discovered via browsing or searching
- “hit rates” low
- Reaches others in your area of work

Active Dissemination:

- Purposefully working for work to reach audience
- More time, effort, connections
- Can potentially reach broader audience

(Darling et al., 2013)

Broader audience includes other scientists, lay persons, nongovernmental organizations, govt, etc. Journalists

Tweets Predict Citation Counts

- Frequently tweeted research (first 3 days post-publication) **11 times more likely to be highly cited** 17-29 months later (Journal of Medical Internet Research; Eysenbach, 2011)
- Top cited articles **could be predicted** from early tweeting frequencies (Eysenbach, 2011)

Summary of Advantages, Disadvantages, and Some Conclusions.

Advantages to Twitter for Research

Free and Low investment of time	Can reach a large and/or distant audience
Potential to reach a specific audience	Fast

Limitations to Twitter for Research

Need 140 character recruitment message	General public's use of Twitter is low
Type of audience reached (incl. self-selection)	Quickly diminishing returns in terms of tweets and RTs
Low response rate (similar to other online methods)	Challenges for ethics review

Summary & Conclusions

Twitter for Research

- Twitter is a **free and quick** means of recruiting participants, with its own limitations
- It provides **novel means of connecting** with other scientists

Open Data Policies

- **Do not** appear to impact rates of consent for the majority of participants
- Online consent forms raise **concerns** regarding **“informed”** consent

Thank you!

jorden.cummings@usask.ca/@jordenc_phd

dayt@email.chop.edu/@EugeneDayDSc