Twitting science: the viewpoint of scientists

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Which is your current position?

- PhD student: 85
- Assegnista: 4
- RTDa/RTDb: 2
- Other: 0
Which is your area?

- LS life sciences: 22
- SH social sciences and humanities: 34
- PE Mathematics, physical sciences, information and communication, engineering, universe and earth sciences: 48
Have you ever attended a communication course?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>20%</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>80%</td>
<td>9</td>
<td>41</td>
</tr>
</tbody>
</table>

Which is your area?

- Life sciences: 9
- SH social sciences and humanities: 24
- PE Mathematics, physical sciences, information and communication, engineering, universe and earth sciences: 13
- Unknown: 5

Total responses: 80
Outline:

- the process of scientific publication
- tips to use twitter
- twitter & dissemination
- twitter & communication (pros and cons)
- the X factor
The process of scientific publication
Publish or perish
The peer review process

Scientists study something.

Scientists write about their results.

Journal editor receives an article and sends it out for peer review.

Peer reviewers read the article and provide feedback to the editor.

Editor may send reviewer comments to the scientists who may then revise and resubmit the article for further review. If an article does not maintain sufficiently high scientific standards, it may be rejected at this point.

If an article finally meets editorial and peer standards it is published in a journal.
<table>
<thead>
<tr>
<th>Communication</th>
<th>Dissemination</th>
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</thead>
<tbody>
<tr>
<td>About the <strong>project</strong> and <strong>results</strong></td>
<td>About <strong>results only</strong></td>
</tr>
<tr>
<td><strong>Multiple audiences</strong></td>
<td><strong>Audiences that may use the results</strong> in their own work</td>
</tr>
<tr>
<td><em>Beyond the project's own community</em></td>
<td><em>e.g. peers (scientific or the project's own community), industry and other commercial actors, professional organisations, policymakers</em></td>
</tr>
<tr>
<td><em>include the media and the public</em></td>
<td></td>
</tr>
<tr>
<td><strong>Inform and reach out to society</strong>, <strong>show the benefits of research</strong></td>
<td><strong>Enable use and uptake of results</strong></td>
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</table>
Rate your past and current experience in

- doing research: 3.6
- publishing research: 1.8
- disseminating research: 1.4
- communicating research: 1.4
Tips to use twitter (X)
Do you currently have a twitter (X) account?

Which is your area?

- LS & Life Sciences: 4, 6
- Social Sciences & Humanities: 14, 13
- P&EM: Mathematics, physics, sciences, information and communication, engineering, universe and earth sciences: 12, 12
- Unknown: 6, 28
Excellent review on #LipidDroplet lipolysis out from @MartinaS_lab and Zechner and colleagues.👏 "Lipolysis: cellular mechanisms for lipid mobilization from fat stores"

nature.com
Lipolysis: cellular mechanisms for lipid...
Nature Metabolism - Zechner and colleagues discuss mechanisms facilitating the mobilization o...
The 280-character limit is a terrible idea. The whole beauty of Twitter is that it forces you to express your ideas concisely (1/47)
ARTICLE

How character limit affects language usage in tweets

Arnout B. Boot¹, Erik Tjong Kim Sang², Katinka Dijkstra¹ & Rolf A. Zwaan¹

ABSTRACT In November 2017 Twitter doubled the available character space from 140 to 280 characters. This provided an opportunity for researchers to investigate the linguistic effects of length constraints in online communication. We asked whether the character limit change (CLC) affected language usage in Dutch tweets and hypothesized that there would be a reduction in the need for character-conserving writing styles. Pre-CLC tweets were compared with post-CLC tweets. Three separate analyses were performed: (I) general analysis: the number of characters, words, and sentences per tweet, as well as the average word and sentence length. (II) Token analysis: the relative frequency of tokens and bigrams; (III) part-of-speech analysis: the grammatical structure of the sentences in tweets (i.e., adjectives, adverbs, articles, conjunctives, interjections, nouns, prepositions, pronouns, and verbs). pre-CLC tweets showed relatively more textisms, which are used to abbreviate and conserve character space. Consequently, they represent more informal language usage (e.g., internet slang); in turn, post-CLC tweets contained relatively more articles, conjunctions, and prepositions. The results show that online language producers adapt their texts to overcome limit constraints.
example of twitter thread
Twitter and dissemination
The role of Twitter in Science Publication and Communication

A survey of 1,163 marine scientists actively using Twitter highlighted the value of this social networking and microblogging site to science and scientists.

**The Publication Lifecycle**

- **Outreach**
  - Experimentation
  - Publication
  - Dissemination
  - Collaboration
  - Discussion
  - Media
  - General public

- **55%** of followers are scientists or science writers.
- **45%** of followers are media or general public.
- **5%** of followers are scientific societies.

**Discussion**

- Twitter is free & works across professional networks.
- Research shows Twitter increases diversity.

**RT**

- Tweets listing to peer reviewed FOIs are retweeted 19% of the time, exponentially increasing dissemination.

**Outreach**

- Median Twitter following: 730x larger than median department size.
- Median Twitter account age: 4 years.

**Publication**

- News organizations, journalists, policy makers, and thought leaders are active on Twitter.

**Dissemination**

- 1,751 tweets by 176 people during the 2013 International Congress for Conservation Biology.
- 11,000 Twitter users.

**Experimentation**

- 55% of academic Twitter users received their PhD >5 years ago.

**Collaboration**

- Twitter is a key tool for collaborative research.

**Discussion**

- Twitter is a key tool for public engagement.

Graphic created using data from: Dalgleish et al., 2013. Peer Refereed before publication in Ecology and Evolution, and references therein, by Katherine M. Clark.
Interactive: Why scholars use social media

In Nature's survey, a subset of scholars who said they 'regularly visited' social media sites were quizzed in detail about their activities.

Twitter (330 regular visitors)  
Facebook (340 regular visitors)  
LinkedIn (389 regular visitors)  
ResearchGate (1,589 regular visitors)  
Academia.edu (283 regular visitors)  
Mendeley (196 regular visitors)

Quotes from the survey:

"Although I don't have many followers, occasionally a tweet will be RT'd and be seen by many people."

TWITTER USER, AGE 45-54, UNITED STATES, SENIOR SCIENTIST
How do you use this site professionally?

Approximately how often do you visit this site in a professional capacity?

How long have you had a profile on this site?

Twitter:
- 330 regular visitors

Twitter usage insights:
- Extremely useful in conference settings.
  AGE 35-44, RESEARCH SCIENTIST, UNITED STATES
- Great way to keep up-to-date on what is happening NOW in the research community.
  AGE 45-54, HEAD OF ACADEMIC DEPARTMENT, UNITED STATES

LinkedIn:
- 389 regular visitors

LinkedIn usage insights:
- Mainly useful for job hunting.
  AGE 25-34, PHD STUDENT, UNITED STATES
- It is too much like Facebook — fluffy forwards and such that are not scientific or related to professionalism.
  AGE 45-54, ASSOCIATE PROFESSOR, UNITED STATES

Facebook:
- 340 regular visitors

Facebook usage insights:
- Facebook has zero credibility in my professional life.
  AGE 35-44, STAFF SCIENTIST, UNITED STATES
- The (invitation-only) groups for professional astronomers and pulsar astronomers have become vibrant discussion fora.
  35-44, RESEARCH SCIENTISTS, UNITED STATES
From: The Kardashian index: a measure of discrepant social media profile for scientists

Twitter followers versus number of scientific citations for a sort-of-random sample of researcher tweeters. Red crosses represent female tweeters and blue crosses represent male tweeters. The black trendline describes the best fit to the data. Those individuals with a highly overinflated number of followers (when compared with the number predicted by the trendline) are highlighted by the area labeled Kardashians.
Twitter and communication
È necessario che i cittadini sappiano di scienza.
Which of the two tweets is more appropriate for the public?
A Nature survey of more than 300 scientists who have given media interviews about COVID-19 has found wide experience of harassment or abuse – with 15% having received death threats go.nature.com/3aCNf9n

**NEGATIVE IMPACTS**
In a Nature survey of scientists who have commented about COVID-19, 15% of 321 respondents said they had received death threats.

*Question:* Have you experienced any of the following negative impacts after speaking about COVID-19 to the media, or posting on social media? (You may select multiple options.)

- Attacks on credibility: 60%
- Emotional or psychological distress: 55%
- Reputational damage: 50%
- Threats of physical or sexual violence: 40%
- Death threats: 30%
- Physical attacks: 20%
- None of the above: 10%
- Other: 5%

Percentage of respondents (%)
the X factor
Major changes from Twitter to X

→ limiting the number of tweets users can see
→ cutting down on content moderation
→ verification that grants paying members additional privileges
→ character limit from 280 to 4,000 (with subscription)
SIGNS OF DISSATISFACTION
More than half of researchers responding to a Nature survey in July\(^*\) said that they were reducing or entirely stopping their use of Twitter. Many also said that they have opened accounts on other social-media platforms in the past year.

**Has your Twitter use changed in the past six months?**

- **I have stopped using Twitter** 6.7% (610)
- **It has significantly increased** 2.8% (257 responses)
- **It has increased slightly** 6% (551)
- **It has significantly decreased** 24% (2,193)
- **It has decreased slightly** 23.3% (2,129)

**Have you opened accounts on other social-media platforms in the past year?**

- **Yes** 46.1% (4,239)
- **No** 53.9% (4,947)

**If so, which ones?**

- **Mastodon** 46.9% (1,976)
What is being lost

- community for scientists, particularly for those from under-represented groups
- control on misinformation
- access to open application programming interface (API)
Which is the role of scholars in society? Emoji only

200 responses