

Twitter for Scientists

Daniel S. Quintana

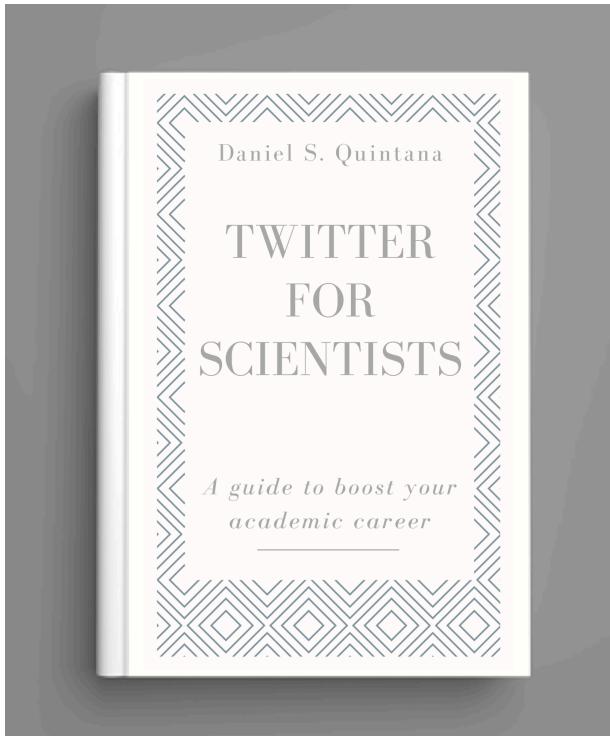
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Contents

Preface	5
Why write a book on Twitter for scientists?	6
A few comments about this book before we begin	6
About me	7
How to cite this book	7
Licence	7
1 Why you should use Twitter	9
Fast feedback	10
2 Twitter for beginners	13
Setting up your Twitter profile	13
The anatomy of a tweet	16
Interacting with other tweets	19
Direct messages	25
Your Twitter style	25
Finding people to follow	26
3 Composing tweets	29
Some example tweets	30
Document your experiences	40
4 Intermediate Twitter skills	45
Pinning a tweet to your profile	45
Bookmarking tweets	45
Hashtags	46
Images	48
Twitter polls	48
Notifications	50
Lists	50
5 Advanced Twitter skills	51
Twitter threads	51
Going viral	60

Making your own GIFs	62
Getting your tweet back in the feed again	62
Sharing your replies	62
Analytics	62
The Tweetdeck app	64
Curating your lab’s Twitter account	64
Highlighting your work on other platforms	66
6 Taking care of yourself on Twitter	71
Annoying topics (or users) clogging your feed	71
Spending too much time on Twitter	71
Dealing with abusive or harmful tweets	74
7 One-month Twitter bootcamp	75
Week 1	75
Week 2	76
Week 3	78
Week 4	79
8 Acknowledgements	81

Preface



Why write a book on Twitter for scientists?

Dan Quintana @dsquintana

There are four ways to get your research known, but only one of these is an option for every early career researcher:

1. Already be famous
2. Have a famous mentor
3. Repeatedly win the peer-review lottery
4. Actively contribute to social media

363 12:34 PM - Mar 12, 2019

77 people are talking about this

I believe that Twitter can provide extraordinary opportunities for scientists, regardless of their seniority, mentors, or institution. By actively contributing to Twitter, I've kept up-to-date with emerging methods, several doors have opened for research collaborations, and I've been introduced to a supportive community of like-minded scientists. Most important, I've received valuable feedback on my work and been able to share my research to people that would have not otherwise seen it. In fact, if it wasn't for Twitter I don't think I'd still be in academia.

I often give talks on Twitter because I've seen how much it can give early career scientists a leg-up in their careers. However, I've found that these talks are better suited for explaining *why* scientists should get involved with social media, rather than *how* to do it. So that I can focus more on the *why* during these talks, I've wanted to refer audiences to resources on how to use Twitter. However, I haven't been able to find any single source that includes all the important information that I think scientists on Twitter need to know.

So that's why I've written this book.

A few comments about this book before we begin

This book will walk you through the ins and outs of using Twitter, covering three levels: Beginner, Intermediate, and Advanced. Unless specified otherwise, I use the Twitter desktop browser website in my examples and instructions. There are a few small differences between using Twitter on your desktop browser and using Twitter's smartphone apps. However, these apps are similar enough for the instructions in this book to be transferable.

It's also worth noting that while I've tried to make this guide applicable to

research scientists across all fields, its written from my perspective as a scientist in the psychological and biomedical sciences, which means some of the examples I use and norms I mention might not be relevant for everyone. Use your best judgement and feel free to pick and choose from the examples I use and the advice given.

Twitter is a platform in flux. It didn't begin with retweets or images, let alone threads and GIFs, so some of the examples in this book may not be relevant in the future. New features are constantly tested in smaller worldwide markets. As I'm writing this, a separate ephemeral timeline, in which tweets disappear after 24 hours, has just been launched in Brazil as a test. This feature might be removed after a few weeks of testing, or could be available for everyone in the coming months.

While it's difficult to predict what Twitter will look like in the future, the broad principles of the platform should remain similar. I will do my best to update this book in the future, in response to Twitter's updates and any changes in norms regarding how scientists use Twitter.

About me

I'm a research scientist at the University of Oslo, in the area of biological psychology. I was awarded my PhD in Psychology in 2013 at the University of Sydney. I now investigate how the hormone oxytocin influences how we think and feel. I'm also interested in cardiac psychophysiology and meta-science, which is the science of scientific practice. Find out more about my research on my website. As this is a book about Twitter, you will not be surprised to read that I tweet a fair bit.

I'm the co-host and producer of *Everything Hertz*, which is a podcast about methodology and scientific life in the biobehavioral sciences. We talk a lot about Twitter on this show, and its role in scientific practice. Many of our episode topics are also inspired by discussions on Twitter. You can also find me on YouTube, Facebook, Instagram, TikTok, and my blog.

I live on an island in the Oslo fjord with my wife and two daughters.

How to cite this book

Quintana, D.S. (2020). *Twitter for Scientists* [eBook edition]. Retrieved from <https://t4scientists.com/>. DOI: 10.5281/zenodo.3707741

Licence

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affiliated with Twitter and all views in this book are mine only (unless it's a tweet authored by someone else).

Chapter 1

Why you should use Twitter

Academia is not a meritocracy. Good ideas and hard work aren't necessarily rewarded, and folks that already hold positions of influence are the ones that tend to get handed more opportunities. Small coteries of gatekeepers decide what gets published in academic journals, who gets selected to present their work at conferences, and which research studies get reported in the media.

To build your academic career you need to grow your reputation. But if you are not well-known already then you're at a distinct disadvantage. It's certainly possible to squeeze yourself into this "attention cycle", in which success begets success, but this typically takes a consecutive string of lucky decisions with grant applications and manuscript submissions. The corollary of this is that many early career researchers are only one decision away from losing their jobs.

There is a prestige bias for success in grant applications and manuscript submissions. To thwart this, several grant agencies now use a lottery system for grant applications and some journals blind the identities of authors to reviewers. But such attempts to reduce prestige bias are not the norm. Those not in a position of privilege have had to disproportionately rely on luck, which is a grim situation.

Fortunately, Twitter has turned the prevailing academic system on its head by helping level academia's lopsided playing field.

Prior to the advent of social media, there was no alternative (other than good fortune) to join the attention cycle. The only way to share your work was by navigating gate-keepers in academic publishers or news organizations. The enormous cost of maintaining these infrastructures for distributing information ensured that sharing information outside these established channels was well out of reach for the individual researcher.

With social media, the opportunity to share work is now available to everyone. You don't have to run the unpredictable gauntlet of peer-review for others to

learn about your research, because you can now post your ideas on Twitter and share links to preprints. There's no need to get a coveted conference talk invitation for others to hear your work, as you can now also post the audio and video of your talks for anyone to see and hear. Rather than hoping a news organization picks up your press release for a story, you can share blogposts explaining your work, with the type of nuance it deserves.

People can't read your work if they don't know it exists. This statement seems obvious, but historically, scholars would discover new research by reading journals (typically prestigious ones), attending conferences, or via word-of-mouth. Fortunately , there's been a shift in the past few years, whereby growing numbers of scholars have been paying attention to Twitter.

Sure, a sizable number of academics don't use Twitter, but this doesn't matter. By getting your work in front of those academics that do use Twitter, you increase the chances of getting your work featured in these traditional channels for sharing research and joining the attention cycle.

Fast feedback

Peer-review is necessary but slow. Once you combine peer-review with the time it takes to plan and run a study, it can take years before your research is published.

But what if your work has serious limitations that your collaborators (or reviewers) missed? Or what if your work isn't even of broad interest to other academics? With the traditional peer-review system, you won't get a good idea of the impact of your work has until it's been available for enough time to begin accruing citations. This time period varies from field-to-field, but for many it can take 12-18 months for citations to start trickling through.

In the traditional publication system, you could spend hundreds of person-hours on project that's not the best use of your time, but you won't discover this until well after you've already completed the work.

Here is example of a tweet asking for feedback, which was at the end of a thread summarising a new preprint that we posted last year.



Dan Quintana
@dsquintana

Replying to @dsquintana

We would LOVE to hear people's thoughts on this before we submit the paper. Have we missed something important? Are there any holes in our reasoning? Can we improve sections of the writing or the figures?

Let us know!

1 4:58 PM - Aug 1, 2019

[See Dan Quintana's other Tweets](#)

After posting this, I got feedback from several people, which ranged from the identification of typos to helpful critiques of our central argument. These critiques improved the paper, which is now published. Perhaps these issues around our central argument would have been caught during peer-review, but when this process is limited to three or four reviewers your chances are slimmer than when you open up critique to everyone.

Of course, you can still post your work on preprint servers without posting links on Twitter. But unless you're already well-known, it can be difficult for your work to be discovered. Research on Twitter can go viral very quickly, thanks to retweeting. Unlike sending an email to your colleague ("Look at this new preprint that I found!") retweeting is effortless, so your work can spread exponentially.

Most people who boast they "made it" without social media already had a large platform at was established before the advent of social media or a foundation of privilege—this is especially the case for successful academics. An environment in which the only way to learn about new research is prestigious publications or conferences is difficult to break into, especially when opportunities are limited.

It is difficult to imagine the academic publishing and conference system ecosystems self-correcting to provide more equitable opportunities. When you're in a position of power and the system is tilted to your favour, there is little motivation to make any changes.

Fortunately, social media has toppled the academic monopoly of attention that was once hoarded by a selective group of journals and conferences. Everyone now has a more equitable opportunity to get attention for their research.

Chapter 2

Twitter for beginners

Twitter was originally conceived as a “micro-blogging” platform, in which users post short text updates. However, it later evolved into a social network where users interact with others. The core feature of this platform is that users share 280-character text posts, which can include links and other media (e.g., images and videos). It’s also easy to add emoji, which can add some personality to your tweets.

Setting up your Twitter profile

After you’ve signed up for an account on Twitter, you should spend a few moments setting up your profile page. It’s important you don’t skip this step, as people will typically scan your profile page before they follow you to see if you’ll be tweeting things that are relevant to their interests.

Choosing your username

If you’re still hesitant about joining Twitter, sign up so that you can secure a good username, at the very least. The longer you wait before signing up, the less likely you can secure a username to your liking. I’ve spoken to many people, especially those with more common names, who regret not signing up earlier as they lost their chance for their preferred username. If possible, try to avoid a long string of numbers at the end of your username, because these types of usernames are often associated with bot accounts.

If you can, pick a username that’s close to your actual name, as this will make it easier for others to find you. Avoid a username that’s associated with your current research area or institution—this might change in the future! Shorter names are also preferable, as these are easier for people to remember and count less towards twitter character limits when other people mention you in their

tweets (more on this later in this chapter). All that to say, don't worry if all the possible permutations of your name are taken. You can still use any name that you like for your *display name*. When people see your tweets and your profile, they can see both your username and your display name.

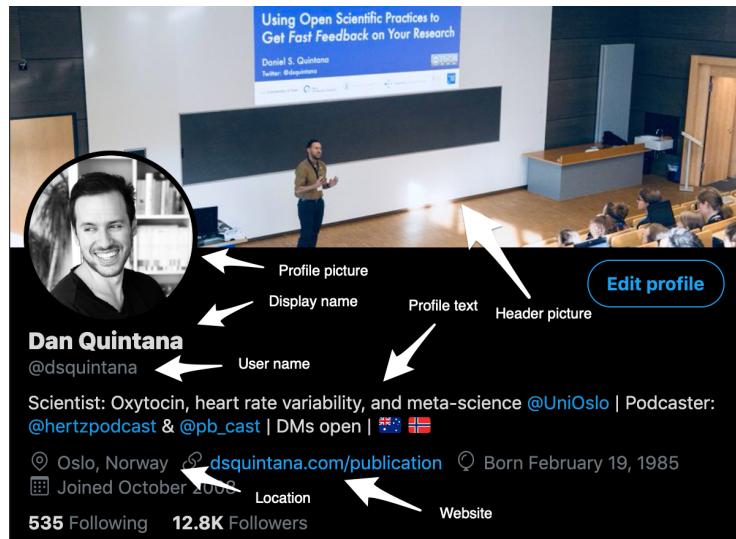


Figure 2.1: The elements of a Twitter profile

Your profile picture

It's important that you change your profile picture to something different from the default profile picture, as this helps reassure others that you're not a bot and also helps people identify you. The most obvious picture to use is one of yourself, but this isn't necessary. You can use an image of anything you want, really. In fact, some scholars have become quite well known for their unconventional profile images.

Daniël Lakens @lakens · Oct 29, 2015

New blog: 1 in 8 reported results contain an error. But what are the errors we make? And how can you prevent them?
daniellakens.blogspot.nl/2015/10/checki...

Tom Hartley @tom_hartley

@lakens Useful post, and I actually saw your face next to the blog. But you'll always be a red square to me.

3 10:36 PM - Oct 29, 2015

[See Tom Hartley's other Tweets](#)

It's fine to change your image every now and then, but don't do this *too* often as people may not easily recognize you when you tweet. Personally, I tend to identify tweets author via the profile image when scrolling through my Twitter feed, and I suspect others do the same.

You can use a JPEG or GIF file with a maximum size of 2MB. As Twitter is used on a range of devices with different screen sizes, Twitter recommends that profile photos are 400x400 pixels. But don't worry if your picture isn't exactly these dimensions.

2.0.1 Your Twitter header image

This is another opportunity for people to get a sense of what to expect when they follow you. If you would like some inspiration, get a free Canva account and then search "Twitter Header" for some free design templates that use the required dimensions (1500 by 500 pixels).

Another common header image is a landscape shot of the region where you live (or where you grew up). Two other popular options are an image of you giving a presentation, or an image of your latest publication. There aren't any specific rules here, but use the opportunity to share your personality or to give a preview of the sort of things that you'll tweet. Twitter also has its own header image gallery, with images that have the recommended dimensions. You can also find some great images on Unsplash, which you can use with or without attribution.

2.0.2 Your bio

Share a short description of your research area and the sorts of thing that people can expect if they follow you. Bios are limited to 160 characters, which isn't a lot. You may also consider including the twitter handle of the institution you work at in your bio.

Feel free to add emoji to give your bio a little more personality. This can give you a few extra characters that you can use. For example, you can also use emoji to highlight your research area. If you are a neuroscientists, say, you could use a brain emoji).

2.0.3 The website link

This is another good opportunity for people to learn about you. As an academic, people will be interested to find out about your publications and your current projects. I think every research scientist should have their own website, as people *will* Google you. You may miss out on opportunities, such as speaking invitations, if you don't have a website with your basic details. Many institutions provide staff and students with a profile page, but don't rely on this unless you have a permanent position. These institutional profile pages also tend to be quite inflexible regarding the kind of information that you can include.

If you have some familiarity with R, I've put together an easy-to-follow guide to make your own website for free. You can also use a Google Scholar profile, which you should set up if you haven't already.

2.0.4 Location

It's up to you for how specific you want to be when it comes to specifying your location. Adding your city could be helpful, as people may want to contact and meet you in person if they're traveling through your region. In theory, you don't have to put a single physical location in this field, with some people using this space to include two cities if they regularly commute between them or they want to include their hometown.

The anatomy of a tweet

Tweets can include text (up to 280 characters), 1-4 images (PNG or JPG), a single GIF, or a video. You can also post both text (including emoji) and one of the types of media described above.

You can get pretty creative with emoji in your tweets.

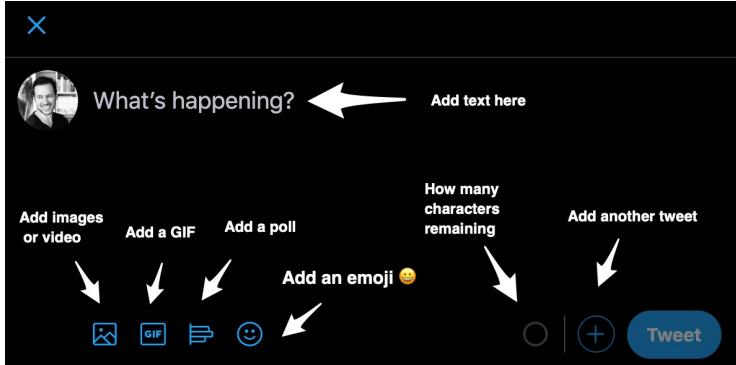


Figure 2.2: The "compose" window.

Dan Quintana
@dsquintana

Your audience when giving a talk:

What you see when giving a talk:

1,716 12:37 PM - Nov 24, 2019

2.0.5 Using text in your tweets

Twitter was originally conceived as a SMS-based service, in which you could send text-only tweets via SMS.¹ The majority of tweets are text only, so this is Twitter's bread and butter.

Your text can also include website URLs. Regardless of the size of the URL, Twitter will treat each URL as 23 characters. You can also mention other Twitter users, by writing the '@' symbol, followed by their Twitter username, like this: @dsquintana. When you use the @ symbol and start typing a name, Twitter will try and guess which account you want to write via an autocomplete

¹Believe it or not, this SMS tweet-feature still exists.

function. People that you already follow will be at the top of the list. When you mention other twitter users in your tweets, they will receive a notification (unless they have this option turned off).

2.0.6 The types of images and videos you can include with your tweets

In terms of static images, you can upload JPG and PNG files. Adding images are a nice way to help make your tweets stand out in people's timelines. Static images can be up to 5MB in size.

If you're looking for images to illustrate a tweet, I recommend doing a search on Unsplash, as you can use these high-quality images without attribution (but you can attribute the photographer if you like). Here's an example of the kind of image you can find on Unsplash.

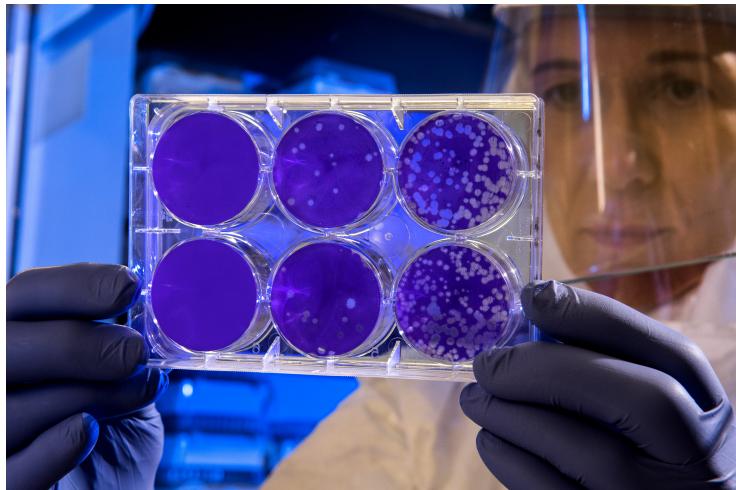


Figure 2.3: I found this image on Unsplash by searching with the keyword "science"

You can also upload GIFs, which are animated images, and search for GIFs directly by clicking on the "GIF" symbol when composing a tweet. GIFs have become a very popular way to share moving images. You can also use GIFs as a replacement for more conventional videos. If you're adding GIFs from another source, there's a 15MB limit when uploading from your desktop (5MB if uploading via the Twitter mobile app).

Additionally, you can also upload conventional videos via the Twitter website. Videos cannot be longer than 2 minutes and 20 seconds or larger than 512MB. There are a number of additional limitations when uploading videos via the Twitter website that you should also be aware of. Uploading videos via the Twitter mobile app is less restrictive in terms of file formats, as you can upload

both MOV and MP4 files. If you have a video that's longer than two minutes and twenty seconds, you can upload the video to YouTube and then tweet the link to the video. I would also recommend posting a short preview of your YouTube video, as I demonstrate in the next chapter.

Interacting with other tweets

When you see other tweets in your main feed, you can primarily interact with them three ways: liking, retweeting, and replying.

2.0.7 Liking tweets

You can 'like' a tweet by clicking on the little heart icon. This acknowledges both to the tweet author and to other people that you liked the tweet (e.g. someone tweeted good news, an interesting article, or shared a funny meme). Liking can also be used as a token of support. For instance, if someone shares bad news, liking the tweet doesn't mean that you *like* the news. Rather, liking the tweet is a show of support for the person who sent the tweet.

Just keep in mind that when you like a tweet, this *might* appear in the feed of people that follow you, but probably won't. Also, others can quickly see which tweets you've liked via the "Likes" tab in your profile.

You might also see tweets that people you follow have liked in your feed too. Liking is also a useful way of acknowledging that you've read a tweet that mentioned you when you don't have the time to reply or the tweet doesn't warrant a reply for one reason or another. Remember, you don't *have* to reply to someone who's mentioned you in a tweet, but it's good courtesy to do so².

2.0.8 Retweeting

If you come across a tweet that you think your followers would value, then you can use the Retweet function. When you click on the Retweet button, you'll get two options. The first option is a conventional retweet, which will appear in your follower's timeline, as if one of the users they follow tweeted it. Below is an example of a retweet. Your followers will see that you've retweeted someone else's tweet, like this.

The second option is to "Retweet with comment". This allows you to share the tweet, along with your comment above. This is a good way to describe *why* you're retweeting a particular tweet.

²Of course, this doesn't apply to harmful tweets. In section 5.3 I discuss how to block, mute, and report harmful tweets

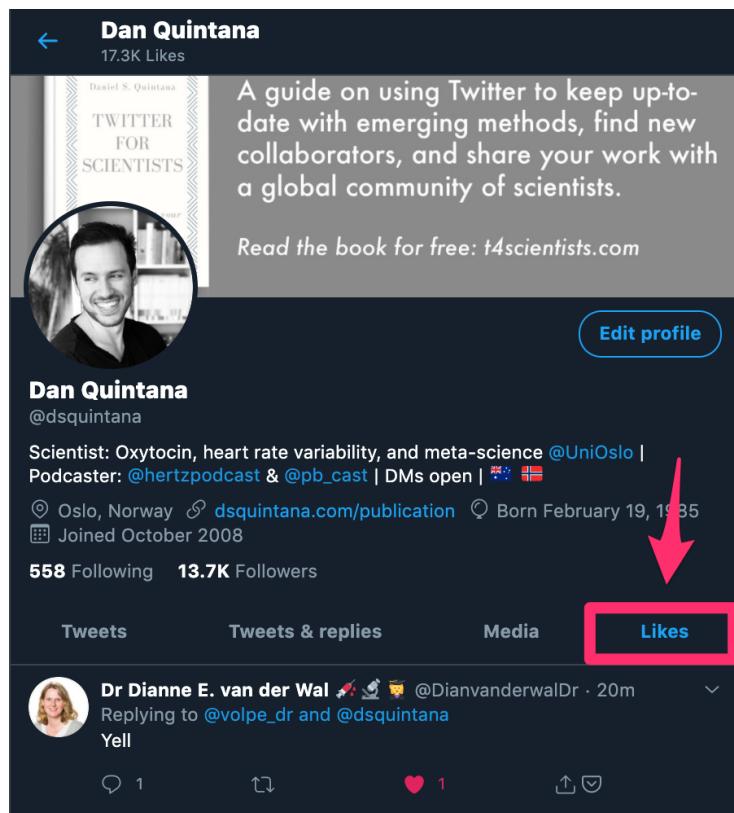


Figure 2.4: The "Likes" column on your profile



Figure 2.5: A retweet example

 **Dan Quintana** 
@dsquintana

If you're interested in science communication this episode is for you  [#TeamTwitterThread](#) twitter.com/hertzpodcast/s...

Everything Hertz @hertzpodcast
103: Swiping right everythinghertz.com/103

We discuss rejection in academia, propose a Tinder-like platform for manuscript submission, consider the potential for science communication on TikTok, and argue about whether twitter threads or blogs are better for sharing research



Here's another example of a retweet with a comment.

The screenshot shows a Twitter interface. At the top, there is a profile picture of a woman, the name "Chelsea Parlett-Pelleriti", and the handle "@ChelseaParlett". To the right of the handle is a blue bird icon. Below this, the tweet content is displayed: "When you think you recognize someone from Twitter, but you're not sure and you don't want to be awkward about it." followed by a link "twitter.com/elonmusk/statu...". A reply from "Elon Musk" (@elonmusk) is shown below, with the handle preceded by a blue checkmark and the text "✌️ bro". Below the replies is a large, blurry image of a meerkat's head and shoulders, looking slightly to the side. At the bottom of the screenshot, there are engagement metrics: "10" with a heart icon, the timestamp "4:48 AM - Mar 3, 2020", and a small info icon. Below these is a link "See Chelsea Parlett-Pelleriti's other Tweets" with a right-pointing arrow.

Remember, if you want your followers to see a tweet in your timeline (e.g., a colleague announces a new paper), then you'll need to retweet it—only “liking”

the tweet isn't enough.

2.0.9 Replying to tweets

One of the great things about Twitter is that it makes it much easier to chat with people that are otherwise difficult to contact via email. An email (usually) includes a salutation, some brief chit-chat, the actual question or comment, then a sign off. With twitter you just write the question or comment. In the following example, I'm replying to a tweet from @xieyihui, who quote-retweeted one of my tweets.

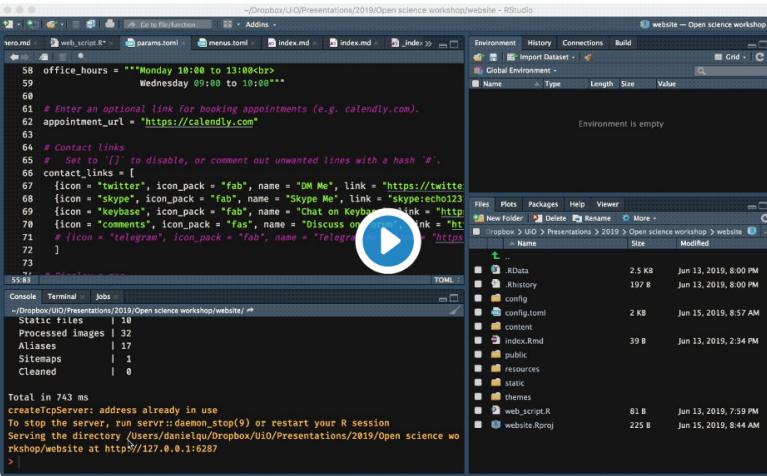
 **Yihui Xie** @xieyihui · Mar 4, 2020 

Replying to @dsquintana

Very glad that you started playing with bookdown now. I'm looking forward to your next viral Twitter thread :) [twitter.com/dsquintana/sta...](https://twitter.com/dsquintana/status/1234567890)

 **Dan Quintana** @dsquintana

If you're an academic you need a website so that people can easily find info about your research and publications. Here's how to make your own website for free in around an hour using the blogdown package in #Rstats [UPDATED 2019 THREAD]



 **Dan Quintana** @dsquintana

You've read my mind 😎 I hope to do one after I've had a little more experience with the package. I hadn't realised until using it how useful bookdown could be for technical documents!

1 9:18 PM - Mar 4, 2020 

 See Dan Quintana's other Tweets >

Replying to tweets is one of the best ways to build your network, as it helps you to establish your expertise in your topic area. All the usual tweeting options are also available for replies.

Direct messages

You can send a private direct message (often abbreviated as a “DM”) to other Twitter users. This is a useful feature if you want to ask a question, but would rather the question wasn’t public. But keep in mind that you can only send direct messages to people that are following you or people that have opted in to receive direct message from anyone. I’ve decided to keep my direct messages open, so that anyone can contact me, but this is up to you. In addition, you can send group direct messages if you would like to privately chat in a group.

If you want to get in contact with another scholar who’s active on Twitter, a direct message is generally more effective than an email as there’s much less friction writing a direct message. There’s no need for long-winded formalities, formatting, or long email signatures. Just keep your message short if you’re contacting someone you don’t know for the first time. If your message doesn’t fit on a smartphone screen, it’s far too long.

Your Twitter style

2.0.10 How Personal should you tweets be?

This is up to you, so share whatever you’re comfortable with. Some people like to keep their personal and academic lives separate, and others like to mix things up. One benefit of sharing some personal tweets is that it gives your Twitter account a little more personality, but don’t feel that you *have* to do this.

2.0.11 Finding your twitter “voice”

Be yourself. Trying to be someone you’re not on Twitter is not sustainable in the long run. Another aspect to consider is how “professional” you want your Twitter account to be. Some people think that you shouldn’t tweet anything you wouldn’t say in front of a live audience of your peers. I understand this sentiment, and realize that different fields have different conventions. But at the same time, you also need to think about the *context* of Twitter, which is typically more casual than doing an academic talk. Just keep in mind that anyone can search through your tweets, if they want. Finally, some institutions have a social media policy, so it’s best to check if your institution has one before you start tweeting.

2.0.12 Using a pseudonym

Some scientists would prefer to not use their real identities on Twitter, for various reasons, and that’s ok! While not using a real identity can limit *some* of the perks of Twitter (e.g., research collaborations), a pseudonymous user can still reap several benefits. But don’t take it from me, here’s @PsyBrief, who

used to have a pseudonymous account (but since identified himself), on what he had gotten out of Twitter while he was pseudonymous.

Mariella Paul @mariella_n_paul · Feb 25, 2020 

Replying to @dsquintana

I completely agree! As an #ECR, twitter is the place where I first learned about meta-science and #OpenScience. Now, it's part of how I keep up with recent developments in these fields and "meet" like-minded people

PsychBrief / Patrick Langford @PsyBrief

I credit twitter completely for my understanding of statistics, research methods, metascience. I might have found out about some of these things without it but it massively accelerated the process. Agree, it's a very useful way to find new people and learn more.

20 10:09 PM - Feb 25, 2020 

[See PsychBrief / Patrick Langford's other Tweets](#) >

Finding people to follow

There are various ways to find people to follow on Twitter. Try searching for some key words of interest in Twitter search, and have a look at the users behind these tweets. If you've found a few interesting accounts, have a look at who *they're* following. Over time, you'll find more accounts as you'll come across more retweets from accounts that you don't follow already.

If you click on the “People” tab when searching (see image below) this will show you accounts that have a specific keyword in their bio.

You will also see a “Who to follow” box next to your main feed on the desktop site. These are *usually* good recommendations, but sometimes you get some odd suggestions. Either way, these recommended users are worth checking out from time to time. These recommendations are based on the accounts the people you are following are interacting with and following themselves.

If your bio and recent tweets align with the interests of the people you follow, they may follow you back. However, people aren't obligated to follow you back so don't expect this as a given.

Remember, you can always “unfollow” people. Twitter **will not** send people a notification if you unfollow them. Alternatively, you can also “mute” people. This means that you're still following them, but their tweets won't appear in your feed.

The screenshot shows a search results page for the keyword "oxytocin". The "People" tab is selected and highlighted with a red box. The results list five individuals:

- Dan Quintana** (@dsquintana): Scientist: Oxytocin, heart rate variability, and meta-science @UniOslo | Podcaster: @hertzpodcast & @pb_cast | DMs open | 🇳🇴 🇳🇴
- Sara Wong** (@sarawongwt): PhD Neuropharmacology @UniofNottingham 🇬🇧 researching preclinical intranasal oxytocin delivery | Co-founder @_100SoM 🇺🇸 | #FENS2020 ambassador 💋
- Oliver Bosch** (@OliBosch): Follows you | Neurobiologist; interested in social attachment - from mother's love to pair bond disruption. CRF, oxytocin, vasopressin
- Constantina Theofanopoulou** (@Constantinatheo): Follows you | Post Doc at Rockefeller Uni (Jarvis Lab) Neurobiology of Language | Oxytocin-Vasotocin | Vertebrate Genomes Project | @NYASciences STEM mentor | Scicomm
- Colin Brown** (@OxyPressingGuy): Follows you | Hypothalamic regulation of peripheral physiology. Oxytocin and vasopressin. #firstgen. Pro-equity and diversity. All opinions personal.

Figure 2.6: Searching for keywords in bios

Chapter 3

Composing tweets

The most common question I get at social media workshops that I've run is, "What should I tweet?". There is no easy answer to this, because every researcher and their subfield is different. But regardless of your subfield, **the best way to engage your followers is to either entertain or educate**. In other words, you should aim to help people either pass time or save time. Being entertaining doesn't come naturally to most people, so don't worry if this isn't you. But as a scientist, you are very well-placed to educate, no matter your level of training.

Thanks to Chapter 1, you're up to speed with the general mechanics of Twitter. You also just learned about the "entertain or educate" principle, with *any* scientist ready to educate. But even when arriving at this point, many scientists hit a wall, because they believe they can only tweet the finished product of their work, which is typically papers. But as soon as you realise that the *process* of your work is just as interesting as the *output*, then things become much easier. You're going to see a few examples of this below.

When it comes to tweet frequency, it's hard to give any firm recommendations. Whether you're tweeting too much depends on how many people your followers are following, and how much *they* tweet. So, this means that the "too much" threshold is different for everyone. In my opinion, I think it's fairly difficult to tweet too much. In the early days of Twitter (or any social network), where users didn't follow that many people, it was pretty easy to flood someone's timeline. But now, people tend to follow hundreds (sometimes thousands) of accounts, so this is harder to do. I think the upside of more tweets outweighs the downside a few people unfollowing you because they think you tweet too much. You never know which tweets other people will find interesting.

Some example tweets

3.0.1 Tweeting about your own research papers

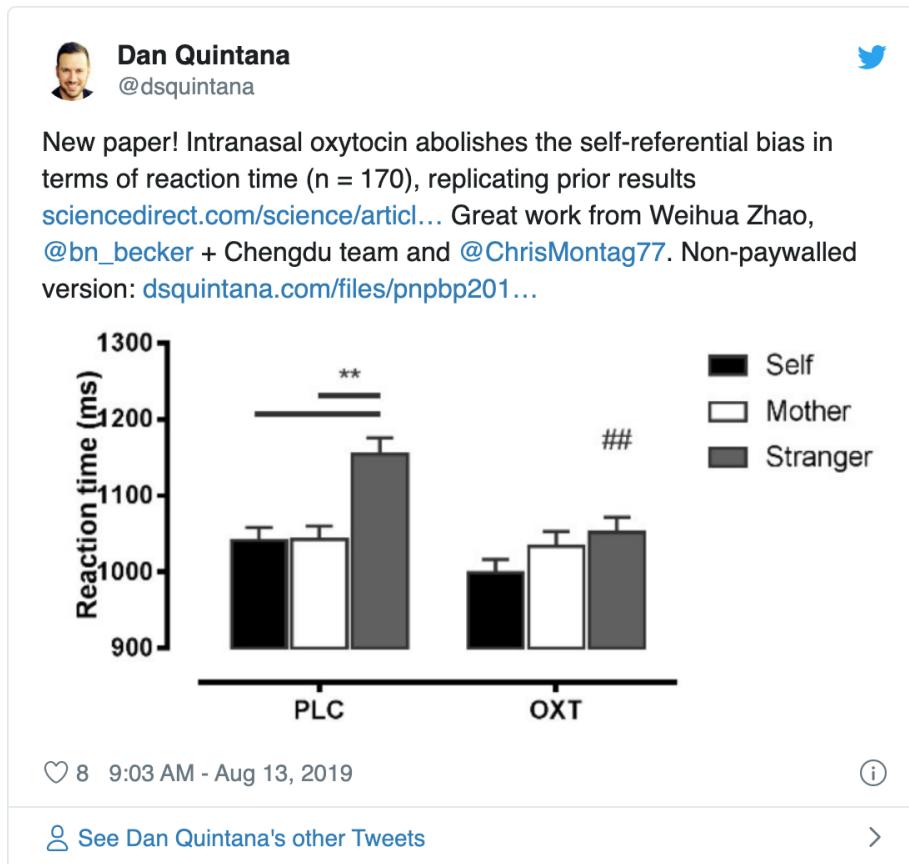
This is one of the most common tweets you'll see from scientists who aren't very active on Twitter. When a new paper is published, they'll log on, post the title of their paper with a link to the paper, and then log off until their next paper is published. There are so many more types of tweets that you can compose, but I'm going to walk through how you can lift your game with these types of tweets, which are one of the main reasons many scientists are on Twitter.

- 1. Add an image from the paper to go with the tweet.** Have a look through the paper to see if there's a striking image that can be used. If there are no figures in your paper, you can just take a screenshot of the abstract or a particularly interesting part of the paper. Skitch is a handy app for screenshots, as you can easily annotate and highlight images. If you're on your smartphone, you can also just take a screenshot and crop the image to your needs. You can add up to four images per tweet, so if you have more than one striking image you can take advantage of this
- 2. Add a quote from the paper.** Find a striking quote from the paper to include in your tweet. You can either write this as text, or take a screenshot of it and then highlight the quote, using Skitch or other software.
- 3. Tag your co-authors and the journal.** Co-authored papers are a team effort, so you should acknowledge your team. In addition, this gives your followers the chance to find more people to follow. If you have a lot of co-authors, remember that you can also tag authors in images as well. This means that your co-authors will get notified of the tweet and others can see who else is involved in the research.
- 4. Add your own commentary of the paper.** If you're not including a quote, you should share *why* you think the paper is interesting. Maybe it's your first paper or it's part of a project you've been working on for a long time.
- 5. Add a link to a non-paywalled version of the paper.** People might see the tweet, but not bother clicking on the link if they do not have institutional access to the journal. However, if you include a link to a preprint or a postprint¹, then people know they can easily access the paper.

In the following example of a paper I co-authored, I mention a summary of the results, highlight the sample size as this is a notable feature of the paper, tag

¹A preprint is a version of an article that is posted to a preprint repository before peer-review. Most journals allow you to submit papers that have been posted as preprints and do not consider this dual-publication. Check your journal's policies. A postprint is a version of paper that has undergone peer-review but has not been typeset. These are typically posted to the author's personal or institutional website. Postprints are usually just a PDF version of the final Word document that was sent to the journal. Unlike preprints, journal policies vary regarding postprints, so it's best to check before uploading one.

my co-authors who are on Twitter, include a link to a postprint of the article, and attach a figure from the article.



Here's another good example, with @GuyProchilo sharing his first first-author paper. Notice that Guy tags his co-authors, the journal, adds a hashtag (#IOpsych) relevant to his research field in this tweet (Industrial-organisational psychology), and includes a striking image of the paper.

Guy Prochilo   

I'm excited to announce my first first-author paper - published in [@Meta_Psy!](#)

"An Extended Commentary on Post-Publication Peer Review In Organizational Neuroscience": open.lnu.se/index.php/meta...

Coauthored by [@WLouisUQ](#), [@DLabMelbourne](#), [@HannesZacher](#), & [@Social_Neuro_M#IOpsych](#)



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Home / Archives / Vol 3 (2019) / Commentaries

An Extended Commentary on Post-publication Peer Review in Organizational Neuroscience

Guy A Prochilo University of Melbourne PDF

Winnifred R Louis University of Queensland Hannes Zacher Leipzig University Published 2019-11-11

Stefan Bode University of Melbourne Pascal Molenaerghs University of Melbourne Issue

12:12 PM - Nov 20, 2019 66  23 people are talking about this  >

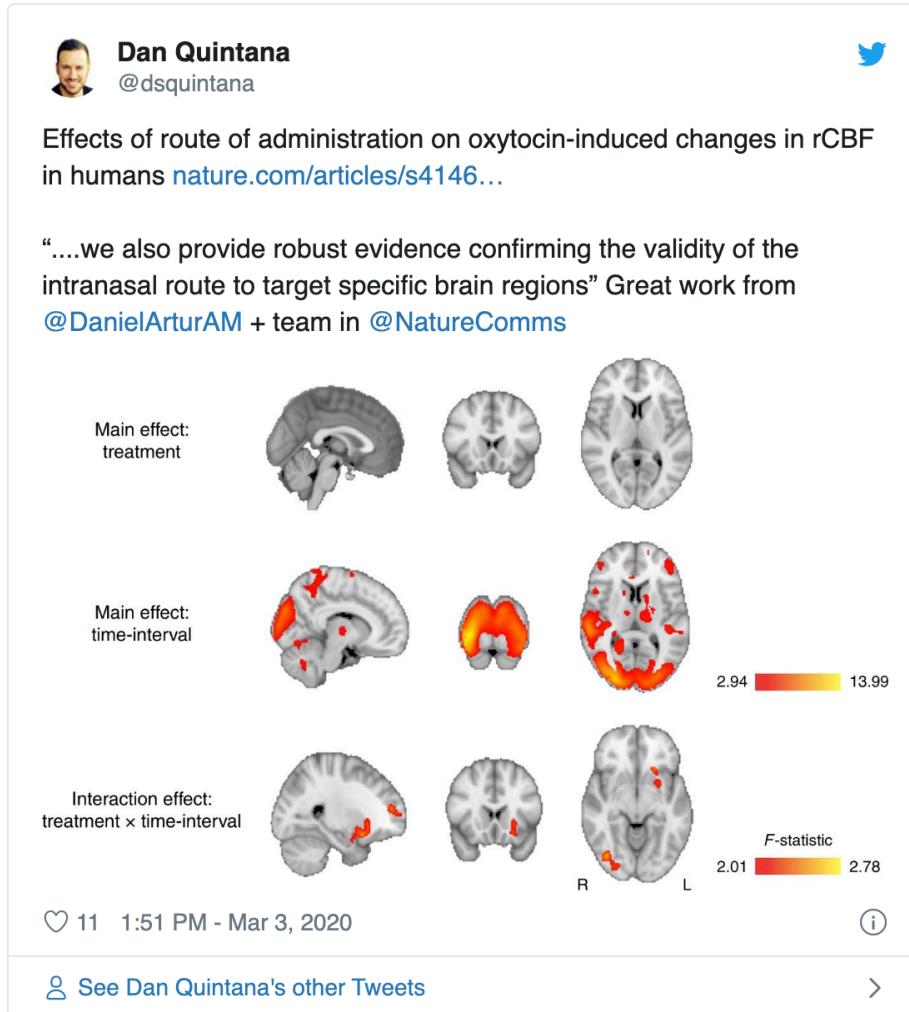
While single tweets announcing new papers can be an effective way to share your new work, I think a thread, which are a series of connected tweets, does a better job—see Chapter 4 for how to make an effective thread to introduce your new work.

3.0.2 Tweeting about other people's research papers

There are only so many articles that you can co-author. So in addition, you should also share papers that you find interesting. If you haven't already, you should set up new publication alerts using keywords that are relevant to your work. Pubmed and Google Scholar are popular options for setting up paper alerts. The advantage of Google Scholar is that it will also capture new preprints

and theses.

Below is an example of tweeting a link to a new paper, in which I added an image and quote from the paper, and mentioned the lead author and the journal that it was published in.



3.0.3 Sharing information about yourself

Twitter provides a great way to connect with other researchers and to share information about yourself that you typically can't convey in a scientific paper. This is the sort of information that you could only normally learn in person, such as at a conference or a lab visit. But as travel is expensive and time-consuming, this option isn't open for everyone.

Here's an example from @_DaniBeck.

Dani Beck
 @_DaniBeck

What did you work on for your undergrad vs postgrad?

BSc:
"the effects of ethnocentrism on automatic stereotyping"

MSc:
"a needs analysis of the population at HMP Birmingham: A service evaluation"

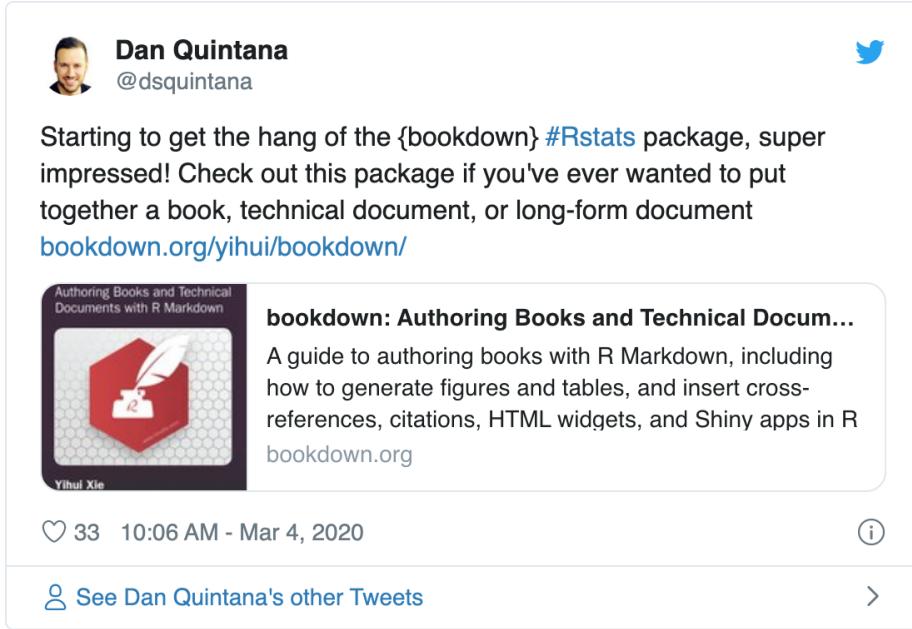
Mphil:
"The Neurotrophic Effect of Antidepressant Drugs on Hippocampal Volume"

242 1:07 PM - Feb 20, 2020

106 people are talking about this

3.0.4 Sharing your toolkit

As scientists, we use several tools in our day-to-day work. Even if these tools seem commonplace to you, your followers will appreciate learning about new ways to do their work. Here's an example of me tweeting about the 'bookdown' R package, which I've used to write this book.



Dan Quintana
@dsquintana

Starting to get the hang of the {bookdown} **#Rstats** package, super impressed! Check out this package if you've ever wanted to put together a book, technical document, or long-form document bookdown.org/yihui/bookdown/

Authoring Books and Technical Documents with R Markdown



bookdown: Authoring Books and Technical Docum...
A guide to authoring books with R Markdown, including how to generate figures and tables, and insert cross-references, citations, HTML widgets, and Shiny apps in R bookdown.org

33 10:06 AM - Mar 4, 2020

[See Dan Quintana's other Tweets](#)

Notice that the link has been converted into a small image with information, which is called a Twitter Card. This is a feature of some websites (including this one), which include Twitter Card information in their underlying code. If you're tweeting from your smartphone, the Twitter Card will appear (if it's available) as soon as you enter the link. This doesn't occur when tweeting from your desktop, but you can quickly check if there's a Twitter Card associated with the link you're going to post on the Twitter Card Validator website. If the Twitter Card contains a nice image then you might not need to add your own. You can also delete the Twitter Card from your tweet as well.

3.0.5 Asking a question

Twitter can be a great way to get advice. If you don't have many followers, you should also consider tagging experts that might know the answer (but don't spam people, so use this sparingly). Here's an example that I used, which was also used for researching this book.

 **Dan Quintana** 
@dsquintana

I'm putting something together on twitter profile/bio pages for an upcoming talk.

What do you think makes a 'good' twitter profile, when it comes to images, text, web URL etc...? What makes you think, "Yeah, I'm going to follow them..."?

♡ 14 3:44 PM - Mar 3, 2020 

 See Dan Quintana's other Tweets 

This book is written for both HTML (online) and PDF (print) output. This is a book about Twitter, so I use a lot of tweet examples. One benefit of an online version is that you can embed tweets, which means that readers can visit the tweet's original source and read any replies to the tweet. It's also easy to see at a glance how many people have engaged with the tweet, as these numbers are attached to the bottom of embedded tweets. However, converting a HTML element into a image for a PDF is not as straightforward as you would think, as you essentially have to take a screenshot for each the tweet. To avoid this extra work, I put a call out on Twitter:

 **Dan Quintana** 
@dsquintana

{bookdown} folks: I'm trying to knit a PDF version of a HTML book that contains HTML elements (embedded tweets).

Is there a way to automatically take a screenshot of embedded tweets for PDF output?

Using the {webshot} package + PhantomJS didn't work...#Rstats

♡ 4 10:19 AM - Jun 24, 2020 

 See Dan Quintana's other Tweets 

Fortunately, Garrick Aden-Buie (@grrrck) found this tweet and updated his 'tweetmd' R package, which solved my problem.

Garrick Aden-Buie
@grrrck

Thanks to prodding from @dsquintana, I added `include_tweet()` to {tweetrmd}. Automatically embed the HTML tweet in HTML #rstats R Markdown docs or a screenshot in other formats, like PDF.
github.com/gadenbuie/twee...

Just include a tweet in any R Markdown output format

When you want to include a tweet in multiple R Markdown formats, you can use `include_tweet()`. It's like `knitr::include_graphics()` but for tweets. The function will automatically include the tweet as HTML in HTML outputs, or as a screenshot in all others.

```
```{r tweet-from-dsquintana}
include_tweet("https://twitter.com/dsquintana/status/1275705042385940480")
```

```

Dan Quintana
@dsquintana

(backdown) folks: I'm trying to knit a PDF version of a HTML book that contains HTML elements (embedded tweets).

Is there a way to automatically take a screenshot of embedded tweets for PDF output?

Using the {webshot} package + PhantomJS didn't work...#Rstats

4 4:19 AM - Jun 24, 2020

See Dan Quintana's other Tweets >

118 7:00 PM - Jun 25, 2020

38 people are talking about this >

3.0.6 Answering questions

A great thing to tweet when you have nothing to tweet is to help other people by answering their questions. There are several hashtags that are often used by scientists to ask questions, such as #AcademicChat and #PhDchat. What might seem like an easy solution to you may save someone else hours of work.

3.0.7 Replying to tweets

One of the fastest ways you can build connections on Twitter and to establish yourself as an expert in your area is to reply to other people's tweets. This seems counterintuitive, as one would think that conventional tweets are a better way to achieve these goals, but replies are almost guaranteed to be seen by the person you're replying to, whereas conventional tweets may not be seen at all (or quickly scrolled past), especially if you're new to Twitter. If others are following both yourself and the person you're replying to, they'll see the original tweet and your reply in their feed.

3.0.8 Sharing memes

Memes are a fun and effective way to demonstrate knowledge and authority in your research area. Notice in this example that this tweet was a quote retweet, so that people can see that I've remixed someone else's tweet.

Dan Quintana
@dsquintana

Hi, I'm a psychoneuroendocrinologist. You might know me from my smash hits: "Don't Buy Oxytocin Online", "You Can't Measure Peripheral Blood Oxytocin Levels to Infer Brain Levels", and "Your Sample Size is Too Small", OR my chart-topping "Oxytocin Is Not the Cuddle Chemical" twitter.com/jbf1755/status...

Joanne Freeman  @jbf1755

Hi, I'm a political historian. You might know me from my smash hits: "It's Complicated," "It's in the Constitution," and "The Founders Didn't Say That," or my chart-topping "This Won't Work Well (Cast Your Eyes Back)." New single drops tomorrow: "The Democracy Tango." twitter.com/TheTattooedPro...

74 1:52 PM - Mar 2, 2020

[See Dan Quintana's other Tweets](#)

3.0.9 Sharing videos

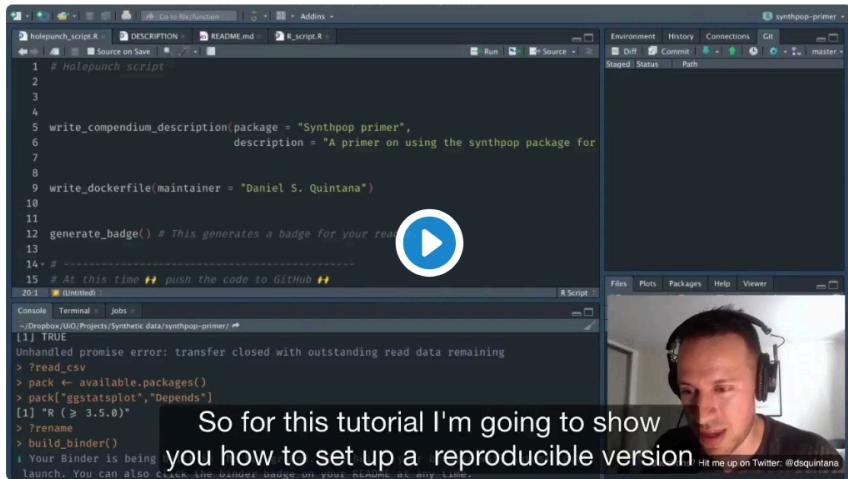
You can include a video that's up to two minutes and twenty seconds long in your tweets. In the following tweet, I've included a link to an eleven-minute instructional YouTube video. I can't show the entire video due to Twitter's limits, so I've included a short preview to entice people to click on the link to the full video.

 **Dan Quintana**
@dsquintana 

How to make a reproducible version of your #Rstats analysis that can be run in any modern web browser, using @_inundata's 'holepunch' package + @mybinderteam

Full screencast w/links [11 mins]  youtu.be/wSkheV-Uqq4

Preview 



302 4:04 PM - Aug 15, 2019 

106 people are talking about this 

If I was only to post a link to the video on YouTube, the Twitter Card would only show a static image. This is better than nothing, but you're much better off with a short preview.

Also note that in this tweet I used the #Rstats hashtag, I tagged the author of the R package and tagged the software service I used.

People can't always listen to audio when they're scrolling Twitter, so it's a good idea to include subtitles. This also increases accessibility for those with hearing impairments. When you upload your video to YouTube, it can automatically transcribe your audio. In my experience, the transcription is about 80% accurate, so you will need to do *some* editing of the transcription. However, this is much quicker than transcribing your video or audio clip from scratch. Another option for adding subtitles to your video is the "Cliptomatic" app. Like

YouTube, the transcription is about 80% accurate, but the editing function is pretty easy to use

Document your experiences

I hardly ever sit down and think, “what will I tweet?”. Most of my tweets are simply offcuts of work I’m already doing, or things I’m already discussing in real life with colleagues.

For example, I was recently having a chat with some colleagues about grant applications. I told them a principle I used to write my applications, which they found useful. So I turned this into a tweet, which also seemed to resonate on Twitter.



Dan Quintana
@dsquintana 

Every grant application introduction I write indirectly answers these four ‘why’ questions:

1. Why this?
2. Why me?
3. Why here?
4. Why now?

♡ 565 9:34 PM - Feb 29, 2020 

 71 people are talking about this 

This thread is another example of “showing my work”. I didn’t have to think of something new to tweet, as I essentially copy and pasted my reply email.



Dan Quintana
@dsquintana 

Got an email from a new grad student asking for recommendations for resources to better understand research design and statistical inference. Here’s what I’m going to tell them...

♡ 1,434 12:20 PM - Jul 14, 2019 

 451 people are talking about this 

Peer-review is a task that most of us do, so you can take this opportunity to

make a wider commentary about your research topic. For instance, I recently shared a point about power analysis using a peer-review I was conducting.

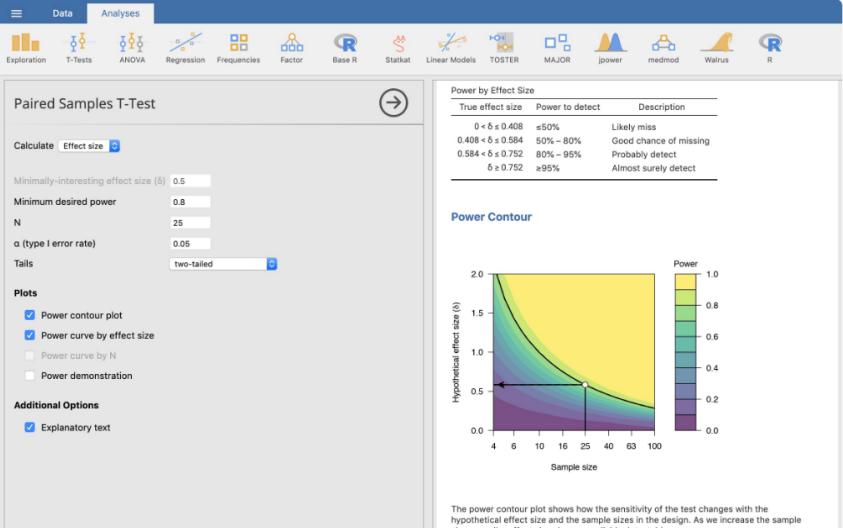


Dan Quintana
@dsquintana

Reviewing a paper with no power analysis, so I did one for them!

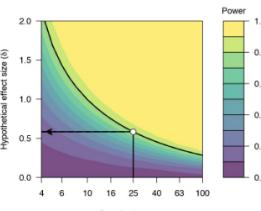
The main outcome was tested using a paired-samples t-test, with 25 participants in total. So I plugged these numbers into the [@jamovistats](#) 'jpower' module and got these results ↴

1/2



| True effect size | Power to detect | Description |
|-----------------------------|-----------------|------------------------|
| $0 < \delta \leq 0.408$ | $\leq 50\%$ | Likely miss |
| $0.408 < \delta \leq 0.584$ | $50\% - 80\%$ | Good chance of missing |
| $0.584 < \delta \leq 0.752$ | $80\% - 95\%$ | Probably detect |
| $\delta > 0.752$ | $> 95\%$ | Almost surely detect |

Power Contour



The power contour plot shows how the sensitivity of the test changes with the hypothetical effect size and the sample sizes in the design. As we increase the sample sizes, smaller effect sizes become reliably detectable.

Heart icon: 239 9:48 AM - Mar 4, 2020
Information icon: ⓘ

Comment icon: 39 people are talking about this
More icon: >

Let's break down this tweet:

1. I used a line break to clearly separate the two parts of this tweet.
2. The screenshot image is eye catching (especially the plot) and conveys a lot of information.
3. The 'down arrow' emoji adds a tiny bit of flair.
4. I tagged a tool that I mentioned @Jamovistats, so that followers could easily find out more.
5. I numbered this tweet "1/2", to signal that this is a two-part tweet. My

followers will see these two tweets back-to-back, but people who see this tweet as a retweet will now know there is more than one tweet on this topic, and can then check the full conversation.

Of course, if you're going to tweet about peer review you will need to keep things as anonymous as possible! Also consider that the author of the paper may follow you on Twitter or come across your tweet if it gets retweeted.

You can also tweet about being at the *other end* of the peer review process.



Dan Quintana

@dsquintana



Reviewer 1: Expand the third paragraph of your discussion as it's critical for your paper

Reviewer 2: Delete the third paragraph of your discussion as it weakens your paper



3,057 11:48 PM - Oct 16, 2019



609 people are talking about this



Remember, the key is sharing the process of your work, not just the final product.

Chapter 4

Intermediate Twitter skills

Here are a few ways that you can lift your Twitter game now that you've got some experience under your belt.

Pinning a tweet to your profile

Once you've got more than about twenty tweets, you should ‘pin’ one of these tweets to the top of your profile. A pinned tweet will be the first tweet that someone sees when they visit your profile, so use this wisely. Here are some ideas of the types of tweets you should consider pinning to your profile:

- Your latest paper
- Your most important paper
- Information about an upcoming talk
- A summary of your current research project
- An announcement for research participant recruitment
- An image of you doing your job or a text tweet describing aspects of your work
- That you’re looking for a new position

As for me, I tend to choose what is currently my most important paper. Pinned tweets continue to get likes and retweets long after you originally post them.

Bookmarking tweets

While some people “like” tweets as a way to bookmark them for later use, Twitter has a specific bookmarking feature. Just click on the share button under a tweet, then click on “Add Tweet to Bookmarks”, as @_DaniBeck demonstrates here.

Dani Beck @_DaniBeck

#ScienceTwitter

Don't forget the usefulness of the BOOKMARK 📒 option!

If you see someone post a good resource: bookmark it & make your very own twitter depository 📒

👉 you see how to bookmark & an example of my bookmarks; some great resources from @dsquintana. @AcademicChatter

University courses at bachelor degree level seriously need to address their lack of coding courses.

These should be mandatory for all sciences, especially social sciences, and part of every research methods course.

It should be integral to the teaching of statistics.

11:44 AM - Jan 13, 2020 · Twitter for Android

22 Retweets 122 Likes

DANI BECK @_DaniBeck · 4h
Replying to @_DaniBeck
I can't speak for every field out there, but in my background, I was severely underprepared for what I was asked to do.

Just got a DM from a grad student asking how I approach journal submissions. This process is full of uncertainty. You can't totally eliminate this uncertainty, but you can increase your chances by reducing this uncertainty as much as possible.

Here's how I do this...

[THREAD] 5 136 384 Show this thread

Dan Quintana @dsquintana · May 7, 2018
If you're an academic you need a website so that people can easily find info about your research and publications. Here's how to make your own

71 5:23 PM - Jan 13, 2020

25 people are talking about this

This is a handy feature for when you come across a tweet with a link to an interesting paper but you don't have the time now to read it that precise moment, for instance.

Hashtags

These are useful for categorizing your tweets. One example of hashtag use is that they can organise communities of like-minded people. The #PhDchat hashtag is a community of PhD students that often post questions and provide support for each other.

 **Jen Heemstra** 
@jenheemstra 

The people who succeed are not those who never fail. The people who succeed are those who can move past failure and keep trying.

Also, the people around you are feeling just as intimidated and insecure as you are. [#PhDchat](#) twitter.com/AcademicChatte...

Academic Chatter @AcademicChatter
Hello @AcademicChatter peeps!

Question: What advice/tips would you give someone on day 1 of their PhD?

Thank you 

 583 4:34 AM - Feb 26, 2020 

 114 people are talking about this 

Hashtags are also useful for organising tweets related to a specific event, like a conference. Many conferences now announce their ‘official’ hashtag that should be used for tweets related to the conference. For many conferences, there are a lot of interesting conversations happening on Twitter, so make use of the conference hashtag by following it and posting your thoughts using the hashtag.

 **Dan Quintana**
@dsquintana 

2009: The REAL conference is at the bar

2019: The REAL conference is on twitter

 928 10:42 AM - Mar 9, 2019 

 117 people are talking about this 

You can also use hashtags in your profile bio, which were mentioned in Chapter 1, like @ChelseaParlett.



By doing this, Chelsea’s profile will appear when people search for the hashtags that she has included.

Images

When you post your images, you can tag Twitter usernames in your images. After adding your image, click on “Tag people”.

Tagging photos has a few advantages. First, it saves you a few characters in your tweet as you tag people in the photo instead. Anyone that you tag will be notified that they’ve been included in a photo. You don’t have to use this feature for only tagging pictures of people. For example, you can post a screenshot of the abstract of a new paper and tag the co-authors of your paper.

Twitter polls

If you’re reading this, you’re probably a scientist, so you should understand that Twitter polls are by no means scientific. However, they still provide *some* information and provide a fun alternative to typical text tweets.

To improve data quality, people sometimes include a “Show me the data” option. This means that people can still see the results without swaying the vote with inaccurate data. You can also set how long the poll should run for. You will get a notification once the poll has closed, so that you can see the final results.

Polls can sometimes start an interesting discussion around the subject of the poll, so consider using this as a conversation starter.



Figure 4.1: Tagging users in photos.

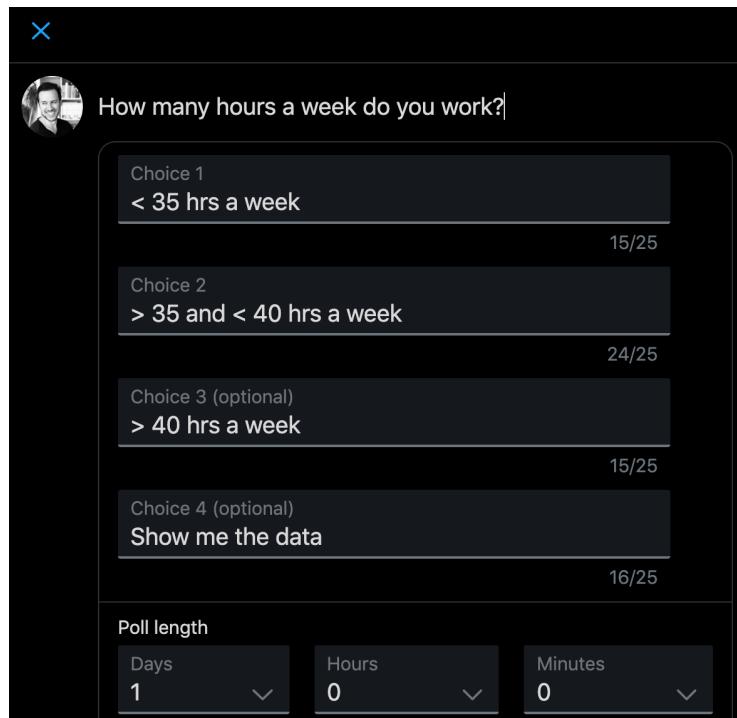


Figure 4.2: A twitter poll

Notifications

If you're easily distracted, I would consider editing your notification settings or turning them off altogether. It's nice to get that little buzz on your phone or the little red dot on your Twitter browser favicon, but every little notification, and the time it takes to regain your focus, adds up over the day. If you're easily distracted by twitter, check out some of the tools mentioned in Chapter 5.

Lists

With Twitter lists, you can create unique feeds that *only* contain specific groups of Twitter accounts. This is a useful way of filtering your general feed, which can get quite busy once you start following more than a couple of hundred accounts. You can also subscribe to other user's curated lists.

Here are a few list suggestions if you'd like to make your own:

- Your collaborators
- People in your institution or lab
- Journals and preprint servers
- Scientists that tweet about specific topics (e.g., statistics)
- Non-science interests (e.g., music)
- Accounts that make you laugh

These lists can either be public or private, and you don't have to be following accounts that you've added to your list.

Chapter 5

Advanced Twitter skills

Twitter threads

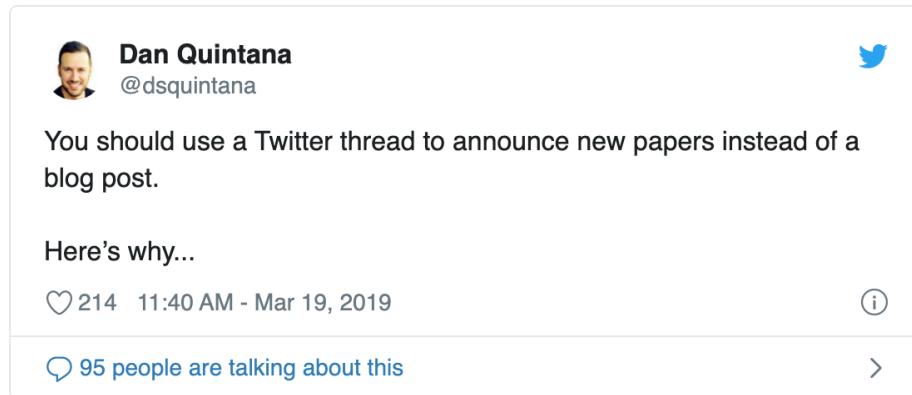
You can't say a lot in a 280-character tweet, but you *can* with a Twitter thread, which connects a series of tweets. In principle, there is no limit to how many tweets can go in a thread; however, Twitter will only let you post 20 consecutive tweets in a single instance. I think this is a sensible limit for a thread, but you can always add additional tweets after you've posted your first 20, if you like.

One benefit of using the Twitter app on your smartphone is that you can save your tweets as drafts—this includes threads as well. So, this means that you don't have to write a thread in a single sitting. Simply select "Cancel" when writing a tweet, then select "Save draft".

5.0.1 Using a twitter thread to announce a new paper

Threads are a great way to announce a new paper, as you can say much more than if you were posting a single tweet. I think threads are a much better way to announce your new papers than a blog post, because they're quicker to write and are more likely to be shared. Unless you add an approximate reading time for your blog posts, people don't know what to expect when they see a link to a blog post in Twitter. But threads are typically no longer than 20 tweets (and usually shorter), so people are more likely to start reading. In addition, you never know which tweet in your thread people will find particularly interesting. If you have a 20-tweet thread, then you have 20 tweets that can be potentially retweeted.

For more on why you should write threads, check out this thread.



Dan Quintana
@dsquintana

You should use a Twitter thread to announce new papers instead of a blog post.

Here's why...

214 11:40 AM - Mar 19, 2019

95 people are talking about this

5.0.1.1 How to write a thread

Here I've selected ten tweets out of a twenty-five-tweet thread I used to summarise a new paper.

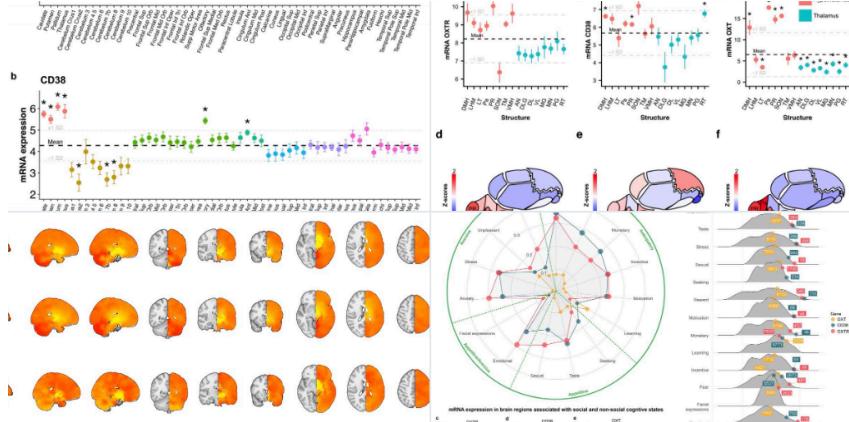
Let's start with the first tweet. This is the introduction, which includes a link to the actual paper and four images from the paper. I also tagged the journal, so that they could be notified of the tweet and hopefully retweet it from their account. I also note that this is a thread, at the bottom of the tweet, so that readers know what to expect.

 **Dan Quintana**
@dsquintana 

Very happy to announce that our new paper on oxytocin pathway gene networks in the human brain has just been published in
[@NatureComms nature.com/articles/s41467-019-10342-w](https://doi.org/10.1038/s41467-019-10342-w)

Here's the story behind this study, how we did it, and what we found...

[THREAD]



🕒 510 12:11 PM - Feb 8, 2019 

💬 177 people are talking about this 

The next tweet gives a little context as to why I did the study. I added a striking image and a link to the paper it's from if people want to read more.

 **Dan Quintana** @dsquintana 

Replies to @dsquintana

Oxytocin-like signaling is an ancient system that goes as far back down the tree as earthworms & sea squirts

ncbi.nlm.nih.gov/pubmed/26392129 Oxytocin production occurs similarly across mammals but the *location* of oxytocin receptors in the brain can vary, even in closely related species

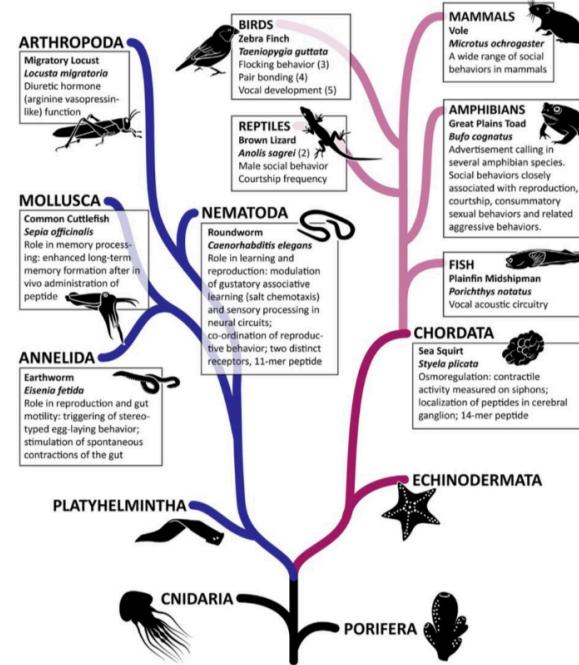


Figure 1. The role of oxytocin across animal evolution. The scheme illustrates the widespread distribution of oxytocin-vasopressin-like signaling system with roots deep in evolutionary time, attesting to the unique properties of such short peptides as information molecules both peripherally and in central nervous systems.

ARTHOPODA
Migratory Locust
Locusta migratoria
Diuretic hormone (arginine vasopressin-like) function

MOLLUSCA
Common Cuttlefish
Sepia officinalis
Role in memory processing: enhanced long-term memory formation after in vivo administration of peptide

ANNELIDA
Earthworm
Eisenia fetida
Role in reproduction and gut motility: triggering of stereotyped egg-laying behavior; stimulation of spontaneous contractions of the gut

PLATYHELMINTHA

CNIDARIA

NEMATODA
Roundworm
Caenorhabditis elegans
Role in learning and reproduction: modulation of gustatory associative learning (salt chemotaxis) and decision processing in neural circuits; co-ordination of reproductive behavior; two distinct receptors, 11-mer peptide

BIRDS
Zebra Finch
Trochopelia guttata
Flocking behavior (3)
Pair bonding (4)
Vocal development (5)

REPTILES
Brown Lizard
Anolis sagrei (2, 7)
Male social behavior
Courtship frequency

ECHINODERMATA

PORIFERA

CHORDATA
Sea Squirt
Styela pililata
Osmoregulation: contractile activity measured on siphons; localization of peptides in cerebral ganglion; 14-mer peptide

FISH
Plainfin Midshipman
Porichthys notatus
Vocal acoustic circuitry

MAMMALS
Vole
Microtus ochrogaster
A wide range of social behaviors in mammals

AMPHIBIANS
Great Plains Toad
Bufo cognatus
Advertisement calling in several amphibian species. Social behaviors closely associated with reproduction, courtship, consummatory sexual behaviors and related aggressive behaviors.

♡ 19 12:11 PM - Feb 8, 2019

[See Dan Quintana's other Tweets](#)

This tweet explains the story behind the paper idea and acknowledges the team behind the project. I also tag the source of the dataset that I used and my co-authors.

**Dan Quintana**

@dsquintana



Replying to @dsquintana

Without access to post-mortem brains, I couldn't do this myself. But then one day in our lab meeting, @jarekrokicki presented the @AllenInstitute human brain atlas and I saw an opportunity.

Here's the @SFFNORMENT multimodal imaging lab, including some of the study co-authors



♡ 8 12:11 PM - Feb 8, 2019

[See Dan Quintana's other Tweets](#)

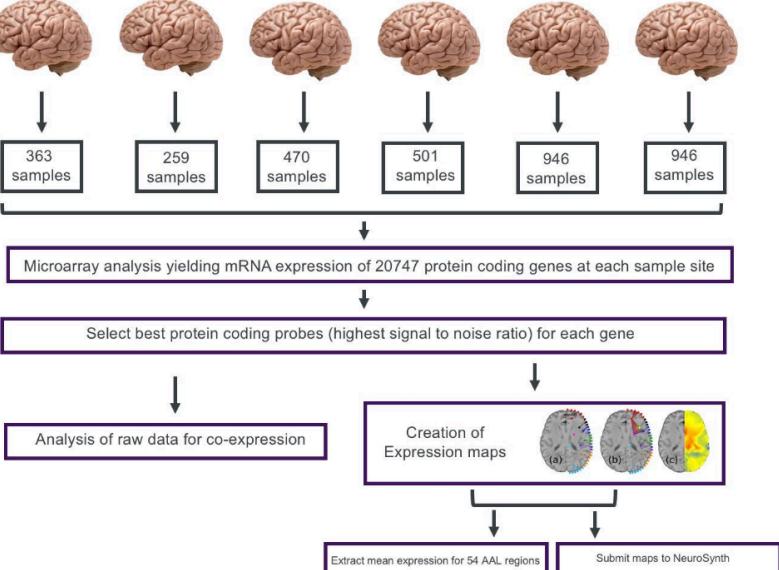
This tweet covers some of the methods for our analysis.

 **Dan Quintana**
@dsquintana 

Replying to @dsquintana

Here's how [@jarekrokicki](#), co-first author of our study, analysed our data from the raw Allen gene expression dataset

Analysis pipeline



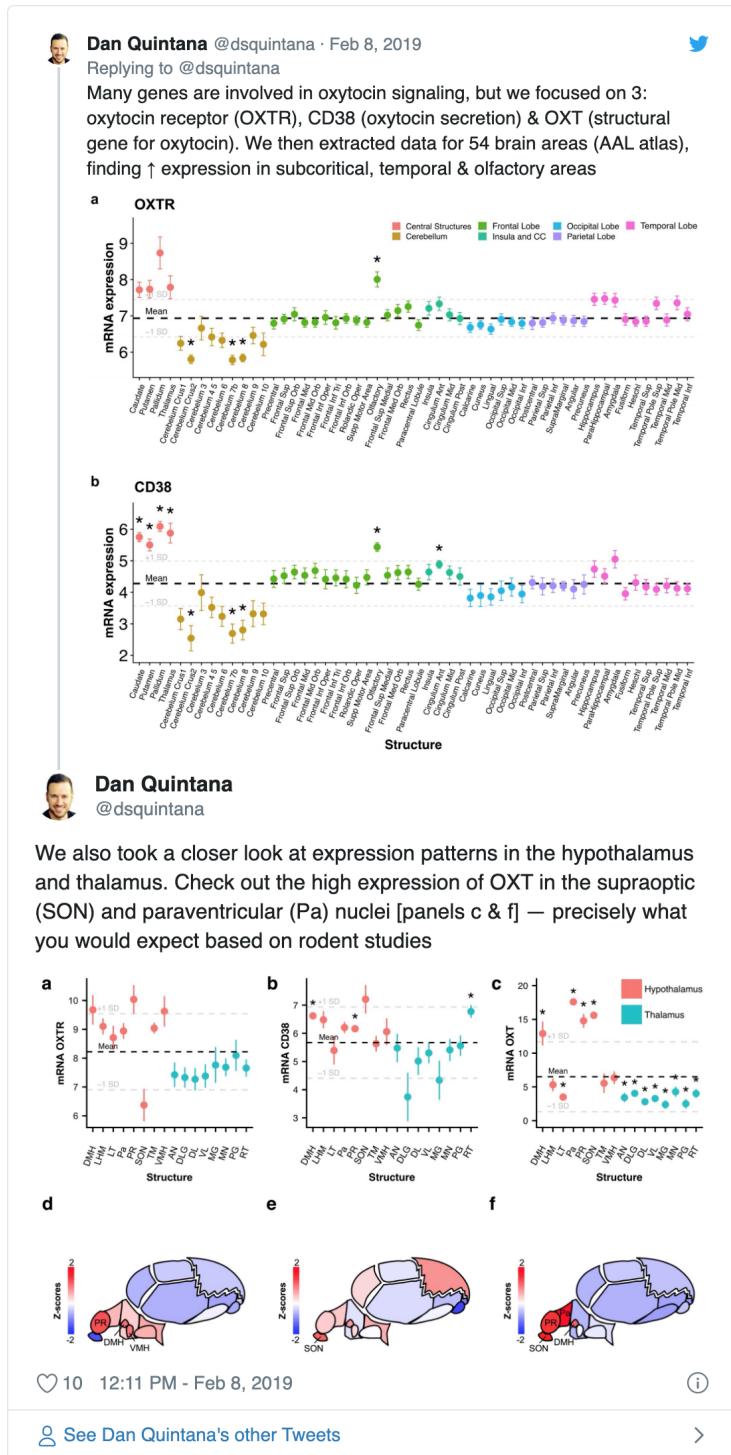
```

graph TD
    Brains[6 brains] --> Samples[363 samples]
    Brains --> Samples[259 samples]
    Brains --> Samples[470 samples]
    Brains --> Samples[501 samples]
    Brains --> Samples[946 samples]
    Brains --> Samples[946 samples]
    Samples --> Microarray[Microarray analysis yielding mRNA expression of 20747 protein coding genes at each sample site]
    Microarray --> Select[Select best protein coding probes (highest signal to noise ratio) for each gene]
    Select --> CoExpression[Analysis of raw data for co-expression]
    Select --> ExpressionMaps[Creation of Expression maps  
a, b, c]
    ExpressionMaps --> Extract[Extract mean expression for 54 AAL regions]
    ExpressionMaps --> NeuroSynth[Submit maps to NeuroSynth]
  
```

♡ 7 12:11 PM - Feb 8, 2019 

 See Dan Quintana's other Tweets >

These two tweets describe some of the results of the paper, via some figures from the paper.

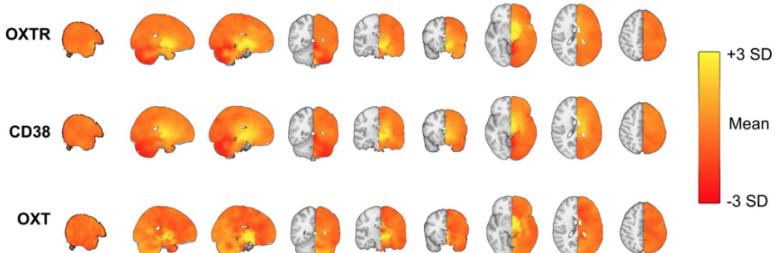


These two tweets describe some of our methods, including a link to the tool I used (i.e., NeuroSynth) and the paper describing this tool.

 **Dan Quintana** @dsquintana · Feb 8, 2019 

Replying to @dsquintana

Next, we created voxel-by-voxel maps of gene expression based on the Allen data and then correlated these maps with meta-analytically derived brain activation patterns of cognitive states from NeuroSynth neurosynth.org

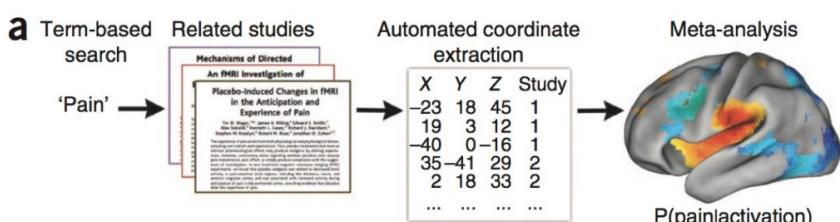


Dan Quintana @dsquintana

Neurosynth is an amazing resource based on a corpus of 14000+ fMRI studies. Not only can you meta-analytically generate cognitive state maps for specific states (e.g., fear) but you can also “decode” cognitive states, given a brain map—reverse inference nature.com/articles/nmeth

...

a



| X | Y | Z | Study |
|-----|-----|-----|-------|
| -23 | 18 | 45 | 1 |
| 19 | 3 | 12 | 1 |
| -40 | 0 | -16 | 1 |
| 35 | -41 | 29 | 2 |
| 2 | 18 | 33 | 2 |
| ... | ... | ... | ... |

b



Pain → Brain Map of Activated Regions

Brain Map of Activated Regions → Working memory?
Emotion?
Pain?
...?

15 12:12 PM - Feb 8, 2019 

 See Dan Quintana's other Tweets >

In this tweet, I acknowledge my inspiration for the study in the first place, to give a little more context.



Dan Quintana
@dsquintana



Replying to @dsquintana

In 2016, Thomas Insel, who was the Director of the NIMH, wrote a commentary on guiding the translation of oxytocin neuroscience to the clinic. The whole article is great, but one section really stuck with me since I first read the paper

“To improve the rigor and reproducibility of [oxytocin] clinical trials, each study must demonstrate target engagement...Occupancy of oxytocin receptors in a specific brain area would be an excellent example of target engagement, but so far there is **no compelling evidence of oxytocin receptors in the human brain**”



Insel (2016) *Biological Psychiatry*, 89(3)

- Thomas Insel – Former head of the NIMH

Heart icon 8 12:12 PM - Feb 8, 2019
(i)

See Dan Quintana's other Tweets
>

Finally, I provide a summary and I thank my team again (this paper was *truly* a team effort).

 **Dan Quintana**
@dsquintana 

Replies to @dsquintana

We now have a map of oxytocin receptors in the human brain, which genes are co-expressed with oxytocin genes, and associated psychological states.

HUGE thanks to all co-authors, especially [@jarekrokicki](#) & [@larswestlye](#)

 32 12:12 PM - Feb 8, 2019 

 [See Dan Quintana's other Tweets](#) >

Before moving to the next section, here's a final tip for your threads: To increase the chances that people will share more individual tweets from your threads, do your best to write each tweet so that it can stand together on its own.

Going viral

It's almost impossible to predict which tweets will go viral, so don't spend time trying to make a viral tweet. I made the following tweet on a whim, thinking a few psychological scientists who are familiar with the rabbit-duck illusion would find this funny. I was spectacularly wrong.

 **Dan Quintana**
@dsquintana 

Rabbits love getting stroked on their nose



♡ 97.7K 3:42 PM - Aug 18, 2019 

💬 29.9K people are talking about this 

While viral tweets have the upside of getting you a few more followers, Twitter will be essentially unusable for you during this period, as your notifications will be **flooded**. It's typically tweets that cover general topics that go viral, so you probably won't gain many new followers who are actually interested in your science—but if you're lucky you might get a few. I have found that the further your tweet travels outside of your network, the more *unusual* the responses. You may also get a few nasty tweets as well, which I cover in the next chapter.

Making your own GIFs

GIFs get a lot of attention. For instance, instead of just posting a static image of your paper, you can create a GIF that scrolls through your paper. Of course, you could post this as a video, but people often expect audio when they come across a video. GIFs don't have audio and continually loop. There is a huge library of GIFs online and you can also search for GIFs directly in Twitter when composing a tweet.

If you would like to make GIFs on your desktop, I recommend the GIF Brewery app (Mac only), as this gives you lots of options for making GIFs. For your smartphone, I recommend ImgPlay (iOS and Android). The best part of this app is that you can squeeze the size of your GIFs to under the 5MB Twitter limit. You can't do this with GIF Brewery app, and you'll have to sometimes play around with the settings to get your GIF under the 5MB limit.

Getting your tweet back in the feed again

No matter where you are in the world, some of your followers will be asleep when you tweet. This means that they might miss your tweet. Don't think too much about "timing" your tweets. However, if you've tweeted something important, like a new paper, there are ways to "re-introduce" your tweets to your user's feeds.

- 1. Retweeting your original tweet.** I would keep this to minimum, as this is the digital equivalent of patting yourself on the back, but this is fine occasionally.
- 2. Replying to your own tweet with a tweet containing additional information.** By doing this, your followers will see your original tweet (despite the fact it was tweeted in the past) and the new tweet.

Sharing your replies

If you've written a reply to someone's tweet, the only time it will appear in someone else's feed is if they follow both you and the person you replied to, or if the twitter algorithm somehow pushes this tweet into people's feed if it's produced a lot of likes or retweets. However, if you want more people to see it, you can retweet that particular reply tweet.

Analytics

With the analytics feature, you can see how your individual tweets are performing in terms of impressions (i.e., how many people saw your tweet) and engagements (i.e., How people interacted with your tweet). Here's an example of the types of engagement you can measure.

| X Tweet Analytics | |
|--|---------|
| Impressions
times people saw this Tweet on Twitter | 187,782 |
| Total engagements
times people interacted with this Tweet | 4,715 |
| Media engagements
number of clicks on your media counted across videos, vines, gifs, and images | 2,349 |
| Link clicks
clicks on a URL or Card in this Tweet | 1,033 |
| Likes
times people liked this Tweet | 456 |
| Detail expands
times people viewed the details about this Tweet | 421 |
| Profile clicks
number of clicks on your name, @handle, or profile photo | 291 |
| Retweets
times people retweeted this Tweet | 141 |
| Replies
replies to this Tweet | 19 |
| Follows
number of people who followed you directly from this Tweet | 5 |

Figure 5.1: Using the analytics feature to understand how people are engaging with your tweets

You shouldn't get too hung up on these numbers, but you can use them as a guide for how people are interacting with your tweets. For instance, you might learn that many people are clicking on the links that you share in your tweets. Or perhaps they're clicking more on the images that you're sharing.

The Tweetdeck app

This web app, which can also be downloaded as a Mac app, is Twitter on steroids. You can customise this app with different columns, which can contain your main feed, the feed of a specific user (including yourself), notifications, a specific search term, the tweets you've liked, and your messages.

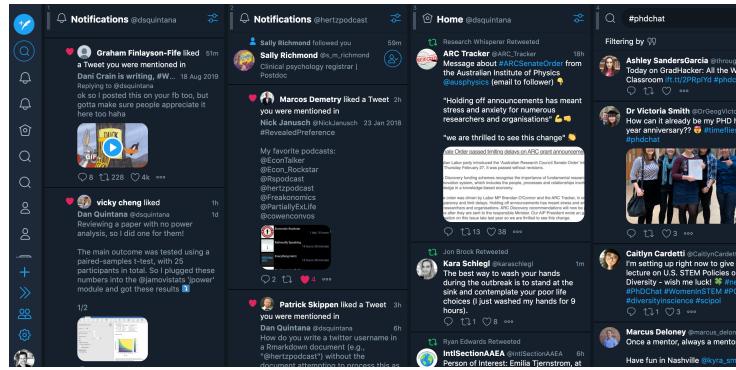


Figure 5.2: Tweetdeck set up with four columns. Note that the fourth column is for keeping track of the PhDChat hashtag

Tweetdeck can be particularly useful if you have more than one twitter account (e.g., your individual account and an account for your lab) or if you're following a specific hashtag or search term. You can create a column with any lists that you've put together, which I covered in the previous chapter.

But I should warn you, this app can be very addictive because it can show you multiple streams of new information.

Curating your lab's Twitter account

Having a Twitter account for your lab is a useful way to highlight all the research from your group. It's also a great opportunity to give some exposure to members of your lab, by retweeting their tweets and tagging their usernames. Some labs rotate the curator from week-to-week between lab members, like @BalesLab.

 **Bales Lab** 
@BalesLab

For [#ThrowbackThursday](#), enjoy this then-and-now photo of one of our colony's infants (from 1 month old to 5 months old). Like many primates, titi monkeys grow drastically during early development, and almost triple in weight across their first year of life. -AB [#TBT](#)
[#TBThursday](#)



Photo by: Alexander Baxter
California National Primate Research Center Photo by: Alexander
California National Primate R

♡ 25 7:04 PM - Mar 5, 2020 

 [See Bales Lab's other Tweets](#) >

Notice that the tweet is signed off with the initials “AB”. This is to indicate that the tweet was written by @Alexer_Baxter who is curating the account for the week. This particular tweet is a great example of using a hashtag meme (#ThrowbackThursday, in which you post a photo from the past) to highlight your work.

It's also a good idea to introduce the curator and to pin this introduction to your lab's Twitter profile, as discussed in the previous chapter.

 **Bales Lab**
@BalesLab 

Hey Twitter, it's Alexander (@alexer_baxter), and I'm taking over our lab's twitter account this week. Stay tuned for monkey photos and facts this week.



♡ 14 8:41 PM - Mar 2, 2020 · Golden Gate Bridge 

 See Bales Lab's other Tweets 

Highlighting your work on other platforms

Twitter's popularity is not going to last forever (remember MySpace?). It's hard to predict the next big social media platform, but it's either going to be predominantly driven by text, video, or audio. If it's text-based platform,

then by getting involved with Twitter *now*, you'll get valuable experience. If you don't want to get involved on Twitter because it's a fad, you'll never get involved on *any* network—they're all fads in the long run. However, if the next big thing is audio or video, then you can use Twitter to highlight your posts on these types of networks.

5.0.2 Video

YouTube is a natural home for any videos you may have of presentations. It's fairly straightforward to save a video of any online presentations that you give via Zoom or Microsoft Teams (just ask for people's permission to record and share beforehand in case they appear in the video).

Even if you don't use YouTube, this is the first point of call for millions of other people when they're wanting to learn about a new topic.

5.0.3 Audio

Podcasts have been steadily growing in popularity. While it's relatively straightforward to start your own podcast for very little money (see my step-by-step guide), it can be hard for other people to find your podcast on the popular podcast directories. To combat this discovery problem, you can post previews of your podcasts and links to episodes on Twitter.

 **Everything Hertz** 
@hertzpodcast

103: Swiping right everythinghertz.com/103

We discuss rejection in academia, propose a Tinder-like platform for manuscript submission, consider the potential for science communication on TikTok, and argue about whether twitter threads or blogs are better for sharing research



[James] The one thing that's really good to get

14 9:42 AM - Mar 2, 2020 

 See Everything Hertz's other Tweets 

Twitter doesn't automatically lend itself to sharing audio, but you can create an audiogram and transcribe the audio (as the above clip) for easier sharing.

Twitter is also slowly rolling out an audio tweet feature.



As of writing, this feature is only available via the iOS Twitter app for limited accounts.

Chapter 6

Taking care of yourself on Twitter

So far, I've covered all the benefits of Twitter. However, not everyone always has a positive experience on the platform. There are three main potential downsides to Twitter that I'm going to cover in this section.

Annoying topics (or users) clogging your feed

There might be some situations where people are tweeting a lot about a particular topic that you're not interested, such as when they're tweeting updates from a conference outside of your field. In these situations, you can mute specific users so they don't appear in your feed. They won't know that you've muted them and you're still following them. You can do this by clicking on the "more" button (the circle with three open circles) on a user's profile (Figure 6.1).

You can also mute specific topics appearing in your timeline, for a set period of time (or forever) by adjusting your settings (Figure 6.2).

Spending too much time on Twitter

Twitter is designed to hold your attention for as long as possible, so it's no surprise that it can become addictive. The constant flow of new information and the intermittent reward of likes, retweets, and new followers makes it *really easy* to get hooked. It wouldn't be this popular if it wasn't fun. This can become a problem, because if you're spending all your time on the platform then you'll have no work to share.

If you're like me, and you sometimes can't resist checking Twitter whenever you have a spare moment, there are desktop apps available, like *SelfControl* (MacOS)

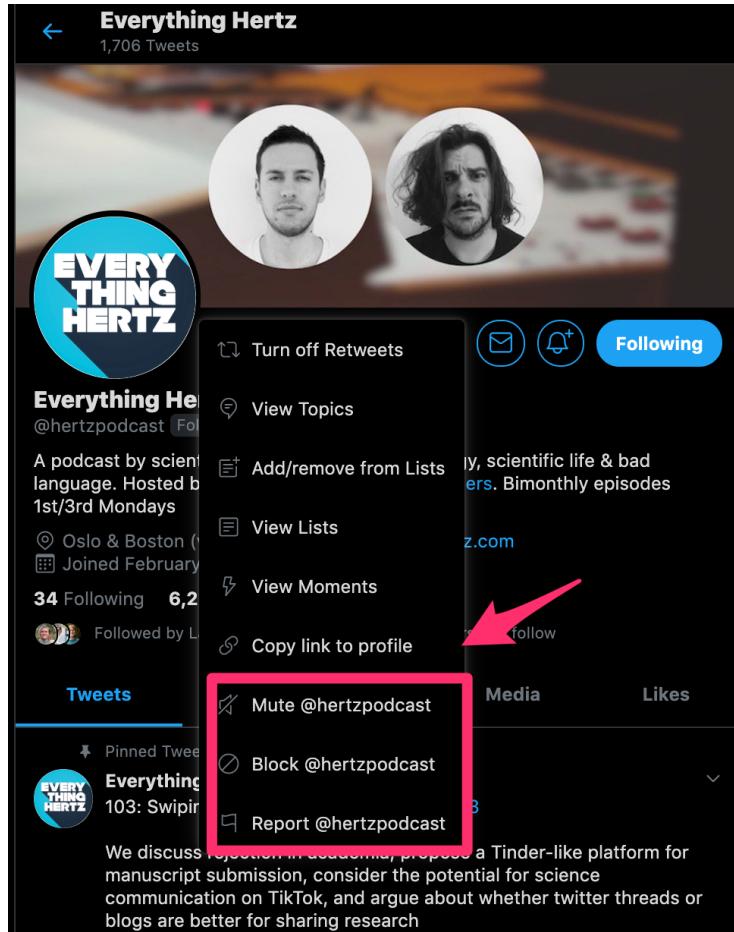


Figure 6.1: Muting a user

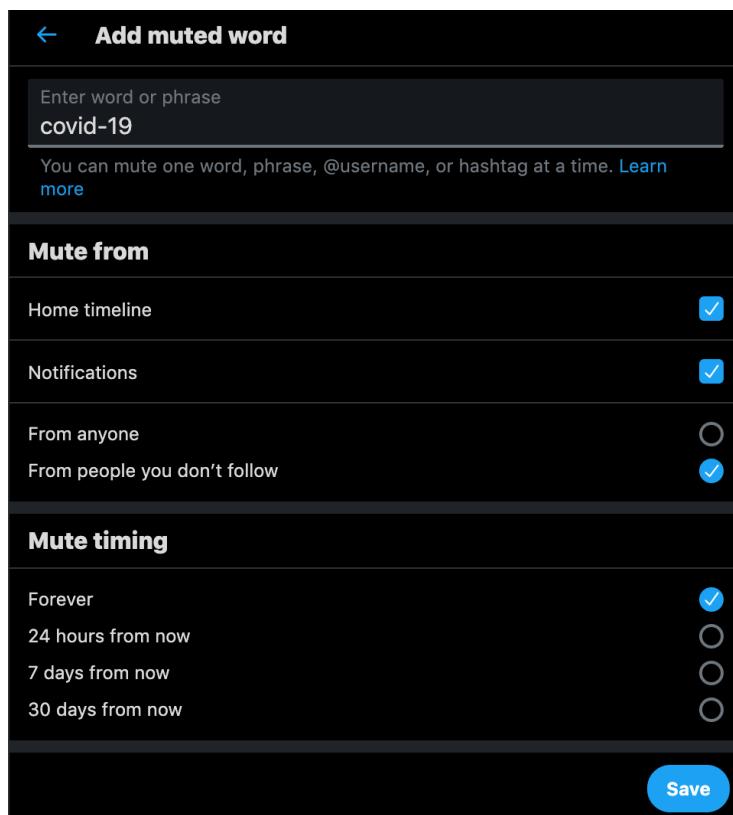


Figure 6.2: Muting a keyword

and *Cold Turkey* (MacOS and Windows), which can block distracting websites. You may want to set this for smaller blocks or for entire days. Personally, I work in periods of forty minutes, in which I block all distracting websites. I take a 10-20 minute break between work sessions, and that's when I usually check Twitter.

It's fine if you want to take a break from the platform from time-to-time. As for me, I have occasional periods where I delete the Twitter app from my phone. I do this if I either have a very tight deadline or if I notice that I've been using the platform too much. The Screen Time iOS app has been an eyeopener when it comes to my use. Don't let the reward of a couple more likes or followers overshadow lost hours of work.

Dealing with abusive or harmful tweets

While not everyone has experienced harmful tweets, it is important to acknowledge that there have been some cases of harassment and verbal abuse in the Twitter science community. This will probably not be a regular experience for you, but it *could* happen.

You can block accounts, which means they can't follow you or interact with you. Keep in mind that if they log out of their account which was blocked, they can see your tweets (if they're public). But they can no longer interact with you.

You can also report abusive or harmful tweets (or accounts) to Twitter, by following these instructions.

Ultimately, your wellbeing is more important than potentially getting a few extra followers and retweets. Don't be shy when it comes to blocking and muting people if required.

Chapter 7

One-month Twitter bootcamp

If you're new to Twitter or you signed up in the past but haven't tweeted since, this one-month template will help get you started. For most days, I'll give you two options for what you can tweet.

This isn't a magic formula, simply a template for people to use who aren't sure how to get started with Twitter. Of course you can deviate from what I recommend here, but if you're not sure what to do, just refer to this guide.

As I've mentioned before, it's better to tweet too much than too little. When people look at your profile and decide whether to follow you, they're more likely to follow you if they see that you regularly tweet. This template provides a guide for what to tweet for twenty days, but bonus points if you also want to tweet on the weekends. I'll leave this up to you. Of course, you can do more than one tweet a day so this is just a minimum guideline.

Week 1

Day 1

Accountability is powerful, especially *public* accountability, so your first tweet is going to announce your intention to tweet at least once every weekday for the first month. Here's an example: "Over the next month I'm going to tweet at least once every weekday".

Find about 50 people to follow (see section 1.6 for a refresher on finding people). As I mentioned in Chapter 1, don't follow too many people before you get started with this bootcamp.

Day 2

- Option 1: Share a study that you've recently read. Remember to include an image (e.g., a screenshot of the abstract or a figure from the article) and tag the authors (if they're on Twitter). Just search their name + Twitter (e.g., "Daniel Quintana twitter"). If they have a more common name, try adding the term "scientist" or the field they're in (e.g., "Chris Jackson geology twitter").
- Option 2: Share a summary of one of your own studies, it doesn't have to be a recent one. If haven't published a paper yet, you can post a summary of your project plans.

Day 3

- Option 1: Retweet someone that you're following. Remember, if you find something interesting, there's a good chance your followers will find that interesting too
- Option 2: Do a quote-retweet, in which you add a comment. This could be as simple as "Here's an interesting paper".

Day 4

- Option 1: Reply to someone's tweet with a comment. If you think that others would find this reply tweet useful, retweet this tweet.
- Option 2: Ask a question using a hashtag to target a specific community. For example, if you use the R statistical language, you use the #Rstats hashtag. You can also ask general career questions using the #PhDChat hashtag, if you're a graduate student.

Day 5

- Option 1: Share a tool that you use in your research (e.g., software)
- Option 2: Post a link to a study that you've recently read

Week 2

Day 6

Now that you have a few tweets under your belt, follow another 50 people, or so.

- Option 1: Quote retweet something from one of the new people you just followed
- Option 2: Reply to one of the tweets of the accounts you just followed

Day 7

- Option 1: Post the PowerPoint slides from one your presentations to Open Science Framework and share the link. Add the four best slides as images to your tweet. Don't forget to use images every opportunity you can. Alternatively, you can post a GIF preview of your entire slideshow:

Dan Quintana
@dsquintana

How to convert your presentation slides into a GIF for easy sharing on Twitter

1. Export your presentation as an MP4 file
2. Change file quality to "low"
3. Adjust the slide transition time accordingly
4. Convert your video file to a GIF using ezgif.com

How to make a GIF slideshow

222 3:26 PM - May 4, 2019

47 people are talking about this >

- Option 2: Share a paper you recently read and share the take-home message.

Day 8

- Option 1: Share a photo from your day (e.g., your lab, your desk, any books you're reading)
- Option 2: Get meta and talk about how you're finding this bootcamp

Day 9

- Option 1: Reply to a tweet
- Option 2: Share a tool that you're currently using

Day 10

- Option 1: Post a thread describing one of your studies or your study plans (see section 4.1),
- Option 2: Pin a new tweet to your profile

Week 3**Day 11**

Follow another 20 people, or so.

- Option 1: Ask a question using the #ECRchat hashtag
- Option 2: Answer a question posed using the #ECRchat hashtag

Day 12

- Option 1: Post a link to music you're listening to (e.g., Spotify)
- Option 2: Share the link to a paper that you've recently read and give a brief summary

Day 13

- Option 1: Post a Twitter poll
- Option 2: Share a link to software package or tool you're currently using

Day 14

- Option 1: Make a video describing the results for one of your recent papers
- Option 2: Comment on someone else's tweet

Day 15

- Option 1: Retweet someone
- Option 2: Retweet someone and add a quote

Week 4

Day 16

Follow another 20 people, or so.

- Option 1: Post a picture of your work in progress (e.g., a manuscript draft, a scientific figure, programming code)
- Option 2: Post a picture of your hobby

Day 17

- Option 1: Post a link to a study that you've recently read
- Option 2: Share a summary of one of your own studies or your project plans.

Day 18

- Option 1: Share a meme
- Option 2: Share a link to a book your reading (or a podcast you're listening to)

Day 19

- Option 1: Answer a question asked using the #ECRchat (or similar) hashtag
- Option 2: Ask a question asked using the #ECRchat (or similar) hashtag

Day 20

- Tweet that you've completed your one-month Twitter bootcamp

Chapter 8

Acknowledgements

Thanks to @_DaniBeck, @PsyBrief, @ChelseaParlett, @BrianPulling, @dhlwilson, and @biomechstu who provided feedback on a draft version of this book.

The lightglobe icon was created by @dcossyle and downloaded from this page. The salt shaker icon was made by Freepik from www.flaticon.com.

Thanks to @grrrck for his work on the ‘tweetmd’ R package.

I wrote and published this book using the bookdown R package and host the book on Github. I first learned about these tools on Twitter, of course.