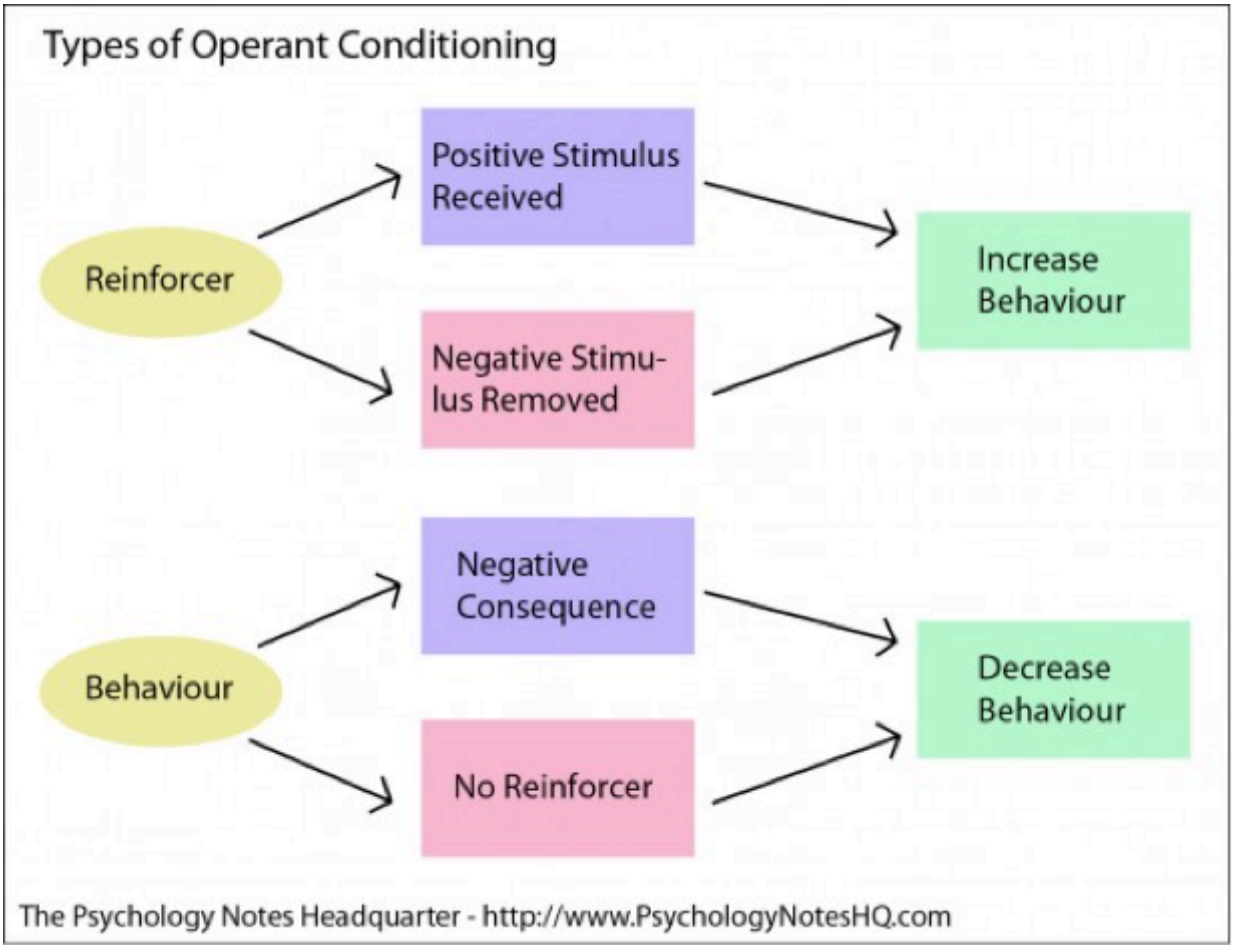
Scientists behaving badly (on social media)

June 3 2015, by Brett Buttliere



Operant conditioning is well established and suggests individuals will continue behavior that is rewarded (for instance with favorites, retweets, or replies). Credit: Psychology Notes Headquarters

It is generally undisputed that Twitter and other social information

exchange websites are changing the landscape of science and communication. The value that these platforms offer is probably best evidenced by how much time the average user spends on them. For example, the average Twitter user is on the site 14 minutes per day, while the average Facebook user spends more than 55 minutes per day on the site .

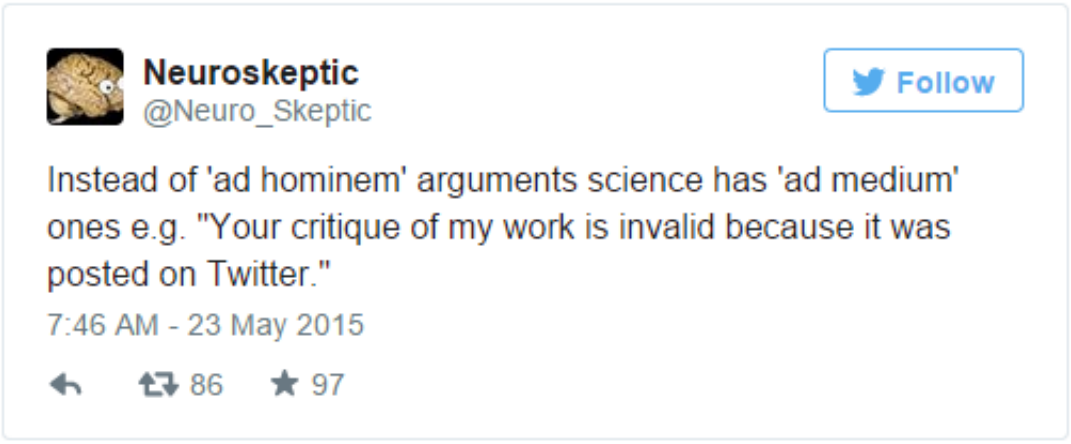
While Twitter and Facebook have mostly been touted as a most excellent tool for discovering new literature and collaborations, it is frustrating when scientists are personally attacking one another, rather than actually debating the scientific ideas, on social media.

Though this aspect of these services has been talked about far less, some have begun asking for civility. You can see my own pleas on Facebook and on Twitter.

The goal here is to more officially and explicitly point out that these problems exist and to suggest some ways by which we can solve these problems for the improvement of all involved.

The problem

It is far too often that discussions between scientists break down into petty debate about how an idea is expressed, or where it is expressed, rather than the idea itself. The practice does not seem to be limited to any single field, as I have seen it everywhere (just look in your own newsfeed and you will find examples of this).



The problem is that attacking how, or where, an individual expressed an idea is not a good argument; these are #AcademicAdHominems and one of the fallacies of irrelevance. Attacking the individual expressing the idea is neither constructive nor productive, and I would go so far as to say that they are actually harmful to the scientific social media "environment". Unfortunately, these tweets are oftentimes the ones getting the most discussion!

Though I know of no strong research on this relationship in academic Twitter thus far (I am working toward it, please email or comment if you know of one or want to help!), there are other examples from the literature that are suggestive of this notion. For instance, it has been shown that the longest discussions in the BBC forums are generally the most negative and that the most active users are also the most negative. It has also been shown that negative reviews of books and movies are longer and contain (subjectively rated) more useful information for readers, with readers even reading more negative reviews. See here and here.

There are arguments to be made that negative information is more useful than positive information, especially in science; but I would say there are there are at least three reasons why this sort of discourse is a problem for science:

1. It hinders the discussion's progress, distracting from the real (scientific) issues.
2. It deters others from joining the discussion, because they are afraid of speaking up.
3. It sets a bad precedent for others who do join on how to discuss productively.

Science is not politics. It is not the media industry. I believe science has a responsibility, as the greatest endeavor humans have ever taken part in, to do better by being better, more effective, communicators.

Probably the main thing is to remember that we are setting a behavioral

example for everyone else, all of the time. It is important that the 'leaders' of the community set a good example from the beginning, rather than trying to go back and fix the bad norms later.

We can solve these problems… by using science!

I don't think it's useful to just complain about something without putting forward a potential solution to the problem. Here the main thing is that we can apply scientific theory, especially Psychology, to optimally understand the problems in science communication (on social media), and to design the most effective solutions.

Although the application of psychological science to the process of science has been happening in small ways for some time, it is starting to happen to a greater extent and applying more fundamental theories to the process, rather than demonstrating problems.

For instance, one of the basic tenants of Psychological Science is Operant Conditioning; the idea that individuals will repeat and continue a behavior that is rewarded. Humans are intelligent, and people (at least unconsciously) recognize that they are getting favorites, retweets, and replies for being mean or petty. We see this playing out in real time on Twitter. Even a week later Taleb's prejudgements of Psychology are still being favorites and retweets, and I am still talking about Gilbert's faux pas, even though it happened over a year ago.

There are many ways to apply science to the situation, but here, I will make three suggestions that are relatively well established in the literature.

1. Notice this behavior in your own tweets. Nobody is perfect, but we can all work to reduce the number of times we attack the scientist instead of the science. Recognize that people are taking

cues as to how to act from you, and if you are not a good example, you are a bad example.

2. Notice #AcademicAdHominems in other researcher's tweets, and be intentional with your Twitter behavior.This behavior is often not undertaken without reason, so pay attention to why this individual is engaging in this behavior: Is it because the person finds it easier to disparage the person rather than their viewpoints? Is it due to jealousy (for instance after a PLOS article gets featured or a paper published in Nature)? Could they be trying to impress another by ridiculing a common enemy? There are numerous reasons for this suboptimal behavior and understanding the motivations can help us inform our response.
3. Be a constructive, positive, example. You are an example for others and others are taking cues on how to behave from you.

This is not always easy, but the research suggests that ridicule is simply not the most effective persuasion. To quote a recently published review of the literature on the subject, the most important antecedents for effective and persuasive online communication are: 'argument quality, source credibility, source attractiveness, source perception and source style'.

Overall, it seems like the best way to convince another person of your idea or suggestion is to state the idea so simply and clearly that they wonder how they ever thought differently. This may not get the most favorites or retweets right now, but if we all are good examples, it will improve scientific discourse on social media.

The bottom line is that your scientific arguments should be able to speak for themselves, without needing to attack where, how, or who expressed the idea.

More information: References:

Bennet, S., (2015, May 23). This is How Much Time we Spend on Social Networks Every Day. Retrieved from www.adweek.com/socialtimes/soc … a-minutes-day/503160

Leonard, H., (2015, May 23). This Is What An Average User Does On Facebook. Retrieved from www.businessinsider.com/what-d … 2013-3#ixzz3aynzN2NX

Costello, V., (2015, March 30). How Articles Get Noticed and Advance the Scientific Conversation. Retrieved from blogs.plos.org/plos/2015/03/ge … ntific-conversation/

Bert, A., (2015, 25 Feb, 2015). How to use social media for science—3 views. Tips from science and journalism pros at the American Association for the Advancement of Science (AAAS) annual meeting Retrieved from: www.elsevier.com/connect/how-t … al-media-for-science

Vazire, S., (2015, May) Both Ways is the Only Way I Want it. Retrieved from sometimesimwrong.typepad.com/w … g/2015/05/index.html

Neuroskeptic, (May, 2015). Personal Communication. Retrieved from: twitter.com/Neuro_Skeptic/stat … s/602093266109132800.

Buttliere, B. (personal communications, 2015, March 24). www.facebook.com/groups/247058 … 26&comment_tracking=%7B%22tn%22%3A%22R9%22%7D#_=_.

Buttliere, B. (18, May, 2015). Personal Communications. twitter.com/BrettButtliere/sta … s/600259689306271744.

Ad Hominem (n.d.) In Wikipedia. Retrieved May 28, 2015, from en.wikipedia.org/wiki/Ad_hominem

Chmiel, A., Sobkowicz, P., Sienkiewicz, J., Paltoglou, G., Buckley, K., Thelwall, M., & Hołyst, J. A. (2011). Negative emotions boost user activity at BBC forum. Physica A: Statistical Mechanics and its Applications, 390(16), 2936-2944. arxiv.org/abs/1011.5459

Chen, C., Ibekwe-SanJuan, F., SanJuan, E., & Weaver, C. (2006, October). Visual analysis of conflicting opinions. In Visual Analytics Science And Technology, 2006 IEEE Symposium On (pp. 59-66). IEEE. hal.archives-ouvertes.fr/hal-00636138/document

Sen, S., & Lerman, D. (2007). Why are you telling me this? An examination into negative consumer reviews on the web. Journal of Interactive Marketing, 21(4), 76-94. www.sba.oakland.edu/faculty/kim/2009/e-wom.pdf

Greenwald, A. G. (1975). Consequences of prejudice against the null hypothesis. Psychological Bulletin, 82(1), 1.

Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. Review of general psychology, 2(2), 175.

Kazdin, A. E. (2012). Behavior modification in applied settings. Waveland Press.

Taleb, N. [NicholasTaleb]. (2015, May 18). If I said astrologists were BS artists, you'd agree. I see social "scientists" the same @BrettButtliere @StuartJRitchie @BryanAppleyard. Retrieved from twitter.com/nntaleb/status/600266835259326464

Gilbert, D. [DanTGilbert]. (2014, May 24). Psychology's replication police prove to be shameless little bullies: www.psychol.cam.ac.uk/cece/blog (corrected link). Retrieved from twitter.com/dantgilbert/status/470199929626193921

Stanford University, [Psychology Everywhere]. (2012, August, 28). Bandura's Bobo doll experiment. Retrieved from www.youtube.com/watch?v=dmBqwWlJg8U

Teng, S., Wei Khong, K., Wei Goh, W., & Yee Loong Chong, A. (2014). Examining the antecedents of persuasive eWOM messages in social media. Online Information Review, 38(6), 746-768. www.emeraldinsight.com/doi/ful … 108/OIR-04-2014-0089