

COMMENTARY

What Ever Happened to the Scientific Conversation?



We are told from the beginning of our studies that the optimal paradigm for scientific investigation is the proposition and then testing of hypotheses. Inherent in this concept is the recognition that science is the pursuit of transient truth. What we believe is true today based on the best present knowledge, may be found incorrect, or at least not entirely correct, tomorrow based on newer revelations. If this is all true, then the process of discussing and re-examining our beliefs is central to the progress of science. This competition of ideas is accomplished through a vigorous discourse: a conversation performed between rivals with opposing ideas. It is not a pursuit of pre-eminence, but rather a back-and-forth attempt to test and hone ideas through open discussion. It is the same competitive process that one sees in a duel. If you want to see a great example of this, go watch the duel scene between Westley and Inigo in the movie *The Princess Bride*. The interaction between the blades is as much a conversation as the words exchanged between the protagonists. The process of having the conversation is often as important as any final resolution because the interplay builds respect, and any attentive discourse generally will lead to acknowledgment of further questions of interest. It therefore is disappointing and intellectually unhealthy that we often now find ourselves entrapped in a system that does not promote, indeed often discourages, any such elements of scientific discourse.

Dogma is clearly the enemy of truth. We generally celebrate the triumph of individual enlightenment over the accepted truth, by Galileo, Einstein, Mitchel, Watson and Crick, and others. But at the same time we maintain a significant intolerance for new ideas that challenge dogma. Rather than encouraging testing of ideas that run counter to the prevailing doctrine, we generally reward work that seeks to confirm or just expand on established principles. Too many good ideas die a miserable death because investigators choose not to take on contentious opinions, especially against established scientific luminaries. Because competition for grants and publication in higher-impact journals has increased over the past 20 years, the willingness for investigators to present publicly and discuss their ideas has been increasingly stifled. The shortening of grant funding cycles to 3–4 years has further inhibited the public airing of new ideas until they reach a final stage of publication.

This atmosphere of academic fear and loathing has resulted in near-irreparable damage to the critical flow of ideas that is central to the scientific conversation. Why is this discourse important? At its heart, this conversation is a discussion of ideas and their meaning. The promulgation of an open discussion of ideas would seem the highest ideal for academic science. Nevertheless, our success as academics

increasingly is measured by numbers instead of ideas: impact factor, priority score, and funded percentile. The race to achieve these numeric goals is increasingly a zero-sum game and does not encourage the testing of new ideas, especially those that challenge dogma.

The symptoms of the stagnation of the scientific discourse are evident: first, larger scientific meetings are increasingly boring. Over the past years, perhaps with the exception of focused smaller conferences such as the FASEB Summer, Keystone, and Gordon Conferences, meetings at a national level have become increasingly stultifying. The major cause of this decline lies in the lack of presentation of new or unpublished data. Previously, presentation of unpublished data was expected at meetings because investigators were seeking feedback on their ideas. This was a critical part of the scientific discourse, especially for trainees. Now one often sees data from major laboratories only if it is already in press. This makes the meetings desultory indeed. The American Gastroenterological Association has sought to fight this trend by banning the submission of abstracts based on published data. The review process for American Gastroenterological Association abstracts facilitates this policy. However, in societies with non-reviewed volunteer abstracts, greater deterioration is obvious.

Second, there is a loss of mentoring on how to discuss ideas. Increasingly, there has been a lack of venues where ideas are publicly debated. Such forums used to be relatively common. In my own experience, The Parietal Cell Club, which for 50 years usually met at the American Physiological Society meeting, was a prominent example of the true scientific discourse. Two presenters each year would be volunteered to present their latest findings and ideas in front of a large group of the top scientists in the field. The discussions were contentious and critical. Students were able to observe how the major figures in the field could in one moment be railing against the other's data and then directly after share a glass of wine or stronger beverage. The adversaries maintained mutual respect for the other's opinions. This behavior instilled in students and post-doctoral fellows the models for open discussion of competing views of science, and more importantly the willingness of investigators to listen to and respond to criticisms in a public forum. This truly was the scientific discourse in action. Too often we now see an atmosphere of intolerance, in which investigators show a general intolerance for consideration of the ideas of others. One might think that the increase of open commentary through the web would provide this type of discussion, but such detached blogging does not substitute for the collegial interaction of rival ideas discussed by human protagonists in the flesh. This is a place to which we need to return.

How do we revive this academic discourse? I would suggest that it is up to the leaders in science and mentors in general to promulgate this behavior. Let us acknowledge

and accept the debate and evolution of ideas. Some have called Seymour Kety's hypothesis of the neurochemical basis of schizophrenia the most important theorization in neuroscience, not because it was correct, but rather because it incited a broad exchange of ideas on the basis of psychiatric disorders. The dismantling and rebuilding of ideas is at the heart of hypothesis testing. If investigators are directed away from testing hypotheses that are risky or, more importantly, admitting that, after testing, hypotheses are incorrect, then the intellectual process is impeded. Being wrong should not be a career ender. Perhaps an inability to admit that a hypothesis has failed testing deserves a harsher response, but that reaction should be played out in public. At *Cellular and Molecular Gastroenterology and Hepatology*, we encourage investigators to publish their findings that challenge prevailing dogma. We are developing tools that will encourage online discussion of scientific issues. But we also encourage investigators to take the intellectual discourse back to public forums. We hope that the exchange of ideas in our online journal will

lead to a greater flow of discussion within the corporeal world of academic science.

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Conflicts of interest

The author discloses no conflicts.

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2352-345X

<http://dx.doi.org/10.1016/j.jcmgh.2016.03.003>