A Scientist for all Seasons: Social Responsibility and Communication in Research

Over the last few decades, the advent of new technologies in various fields has led to the explosive generation, accumulation and distribution of an immense amount of scientific data. Not only has it become increasingly difficult to stay current with the progress made by the research community, but the pressure to rapidly generate novel ideas and publish has grown. Although research often directly influences health-care related public policy and medical ethics, these pressures can often prevent us from properly reflecting on our scientific responsibilities and the social implications of our research.

One of the main objectives of Hypothesis is to emphasize the importance of communication between scientists and to maintain an ongoing, evolving discussion on the role of research in society. The focus of this issue of Hypothesis is on the dissemination of scientific information and the social and philosophical responsibilities involved in research.

Many of us will agree that communicating our findings to society is a vital aspect of our profession. We might even argue that it is our civic obligation, since in most cases public money fuels our research; and yet this obligation is often neglected. Eighteenth and nineteenth century scientists held public displays to explain their work to the general public in layman's terms. Today, mediating communication between scientists and the wider community is left to journalists and writers who often know little about the details of the research. As each field of research becomes increasingly complex, we must ensure the public is not only accurately informed but also remains interested about it. On page four, Nicole Miller discusses how this may be accomplished by exposing high school students to science in the laboratory setting.

Communication within the scientific community itself has also become a topic worthy of increased attention in the last few years. The information accumulated by scientists usually finds its way into 'for-profit' journals which bar access without payment. The question is whether free access to information should be a fundamental principle in science. One would think that overall, it would benefit science if all information were available to everyone at anytime, since, at least in principle, our primary motivation is the pursuit of knowledge and its application to better society. An article by Patrick Subarzsky on page seven analyzes some of the pros and cons of free-access publishing, underlines the complexity of the problem and emphasizes the importance of this debate.

Although throughout history, a physicist, a chemist and a biologist would have been expected to discuss advances within their research fields, the recent progress made by science can make such conversations difficult. The degree of specialization in various fields has increased tremendously and has resulted in an ever-widening gap between and within disciplines. Nevertheless, nature cannot easily be divided into isolated components such as ‘biology’, ‘chemistry’ or ‘physics’. Instead, it is one continuum from the subatomic to the macroscopic and all three disciplines are represented at every level. For this reason, collaborations between scientists from disparate fields have recently been flourishing with the hope that they will break down the confines and boundaries created by specific disciplines. While there is a lot of hype about how multidisciplinary research will benefit science, this new trend has barriers to overcome. In an article on page five, Heather Baltzer considers how graduate students fit into a multidisciplinary research formula.

Finally, the overwhelming majority of scientists tightly attach certainty or truth to their acquired data and to the theories arising from them. This has created a certain infallible appearance of science and has generated the misconception (for scientists and the public) that all scientific findings are “the truth”. On page eleven, Stephen Chen, , explores the relationship between science and truth and discusses the definition of a “scientific proof”, and whether this concept is even possible. He addresses the potential misunderstandings of these issues and the consequences they have on the practice of science and society as a whole.

Clearly, it is ever harder to keep up with the incredibly fast pace of scientific progress and remain connected with the breadth and depth of its consequences. Given how much impact current science has on technology, health care, and ethics, it is extremely important that scientists be aware of their social responsibilities and that they remain accountable for the truthful dissemination of their findings. It is our hope that this issue of Hypothesis brings to our attention the importance of these issues and becomes the first in a fruitful series of further reflections.

Hypothesis Editors-in-Chief

Wissam Assaily Bart Kus
Christina Lee Mariano Loza Coll
W. Wei-Lynn Wong