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Ed Boyden's blog

Ed Boyden is an assistant professor in the MIT Media Lab. His lab broadly invents new tools to engineer brain circuits, in order to treat intractable disorders, augment cognition, and better understand the nature of existence.

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Monday, July 28, 2008

Research as a Community-Building Activity

The potential impact of participatory science, personal and global.

Community activities, especially those that bring together people of all ages, seem to be increasingly rare and brief lived in this busy world. Yet they provide a lot of meaning in people's lives, for reasons ranging from the deeply personal to the broadly impactful. I used to volunteer for the San Francisco Symphony, selling discounted concert tickets to college students. This activity brought together people of all ages to contribute to the survival of the arts, and to learn from one another about topics ranging from fundraising to musical composition to the role of music in health. And it yielded many enduring friendships, formed in the act of pursuing a common goal. From this experience and others, I learned that community participation in an activity gives people a stake in it, ensuring its endurance and prominence. It also increases the diversity of people who contribute to the activity, beyond just the specialists, thus broadening the scope of the activity and increasing its power and relevance. Finally, such activities enrich the meaning of the lives of the people participating, enabling them to contribute to the well-being of the world and building communities of interaction and support, which is perhaps why the absence of such activities in one's life can be palpable at times.

Scientific research, when compared with other areas in which people can volunteer their time, seems to be relatively unexplored as a community-building activity. The conventional wisdom implies that scientific research is something you do when you are training or in school, so that afterward you can go off to make useful products and provide valuable services. To caricature only slightly: the public is often painted as a confused, and sometimes suspicious, consumer of scientific information, and the production of science is often painted as an abstruse art, and occasionally a dangerous one. And the two sides--the public and the producers of science--meet only occasionally, through journalists and explicit outreach efforts. It is, however, widely accepted in this interdisciplinary age that scientific discovery, to be the engine of change that is needed, broadly benefits from the interaction of people from diverse backgrounds. Thus, I believe that we should think about ways to involve all community members broadly in the act of research itself, working in groups to discover and share knowledge.

Involvement of the public in the act of science would shape the kind of science being done, perhaps increasing the impact of science on daily life.

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Community involvement in the act of research would also make science more understandable, and perhaps more familiar, to the public, because people would be engaged in its framing and communication. What better way to increase scientific literacy, make the benefits of science clear, and quell myths and spread facts than to give all people a stake in the act of discovering science? Maybe the way the world sees some currently controversial topics--stem cells, climate change, energy sources--would be different if more people engaged in the act of testing hypotheses and examining data. Community participation in science would also be enormously personally enriching, providing exercise in thinking and problem solving (something that is useful in all problem domains, throughout life) and empowering people to contribute directly to the betterment of society in a broadly impactful way.

More and more fields are being democratized by strategies that make it easy for people to create: bloggers can write news stories, teenagers can film movies and upload them, and anyone can compose a novel and get it in front of millions of readers. People talk about "participatory media," but what about "participatory science"? The opening of science is occurring slowly--led by the open-access journals, perhaps, and by some groups sharing their data and insights in increasingly informal ways. But the opening up of the act of scientific research itself is still not widespread. I propose that we begin to create programs in which members of the public, of all ages, can meaningfully volunteer in laboratories, working together on problems--perhaps only for a few hours a week, but over an extended period of time, to achieve depth. If you are a lab head, think about inviting someone new into the fold. If you are interested in participating in scientific research, reach out to people nearby and see if you can help.

Most scientific funding agencies currently focus on the training and development of young people. "K-12, undergraduate science majors, non-science majors, and graduate students," the NSF helpfully suggests as key demographics to focus on in order to broaden the impact of one's research. But it seems to me that programs that engage other demographics--for example, retired individuals who want to create and mentor, with their wealth of knowledge, practical experience, and wisdom--would not only provide new perspectives for young people entering science, but also enrich the lives of a segment of the population that is not actively recruited to the intellectual process by many current institutions. Working with other scientists is just fun. It is highly interactive and engaging, and can cover vast intellectual and emotional ranges, as well as bring people together, as with any meaningful community activity. And there will always be important problems to solve.

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[Specialization](#)

"Community-based" science research is a great idea. But it would be very hard to implement unless we break a traditional mentality and approach of science, which is specialization in a certain field. When specialization occurs, it is very hard not to develop specialized jargons and focus on details that are too remote from the original "big-picture" question that the research is trying to answer and which the general public can typically understand. I suggest that all scientific papers should include a heavier discussion on how the specialized experiments mentioned in the papers are related to what the authors are ultimately trying to answer. Embracing interdisciplinary research will also help.

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[ahkc](#)

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[Society for Amateur Scientists](#)

The Society for Amateur Scientists ([sas.org](#)) might be a great source of amateur scientists and people who want to help professional scientists do research.

At one time *all* scientists were amateurs. Read popular US how-to magazines from the 1930s, and you'll see lots of regular people doing science.

A lot of the best science I know of was done by people who weren't doing professional science in their field. They investigated something because it was interesting, or because they needed to know about something, and discovered things that were new, fascinating, and useful.

As someone whose unpaid "amateur" research is often ahead professional paid researchers, I'm for anything that will help science become once more something that ordinary people expect that they and people they know can and will do.

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[Bloggers...](#)

Apparently you mentioned bloggers and you associated them with media yet they can and most certainly do be involved in community based science they have very strong communities ,.... they know each other and professional bloggers have huge viewership or more like readership.....

There's a huge community of bloggers and if even some start putting up information in [technology blogs](#) not knowledge off course it can still make a world of difference. It will not be research, but one having a higher hand in knowledge can help someone researching at a lower level.

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