

“Progress through Novelty”

The Kavli Frontiers of Science Symposium

ANDREW YANG

ABSTRACT

This report on the first-ever Art-Science Interface session at the annual Kavli Frontiers of Science Symposium collects reflections from a number of the session’s invited participants as well as its organizers. What impact does the participation of artists have at an elite science research symposium? How does cross-disciplinary engagement of this kind both reflect on, and take part in, the larger conversation concerning art-science collaborations and the significance of their outcomes? These questions and others are briefly explored.

On 7–9 November 2013 a small bit of art-science history was made in Irvine, California. The occasion was the 25th Annual Kavli Frontiers of Science Symposium (KFoS) at the National Academy of Science’s Beckman Center. Every year this meeting brings together one hundred of the top young scientists from diverse disciplines to share the latest developments in their fields. Among the nine core themes chosen for this meeting—spanning the threat of asteroid impacts to advances in protein folding—was the first session ever devoted to “The Art-Science Interface.”

INTERFACE

“I personally took an interest in this topic because I feel strongly that doing really cutting-edge science requires an integrated unique/artistic perspective in visualizing one’s own science,” said Kay Bidle, an associate professor of Marine Science at Rutgers University and the chair of the organizing committee for the event. Bidle continues, “Creativity in science is how we push ourselves and science to new frontiers.” Bidle and Desney Tan, a computer scientist for Microsoft affiliated with the University of Washington, invited me to chair this particular session. Two speakers, Natalie Jeremijenko and Jamie Gillooly, together with six artist/scientists, were also invited to contribute to the conversation over the course of the symposium. Recognizing both the traditional

divide between these “two cultures” of creative work as well as the recent groundswell of interest in their interface, the session considered the possibility of art and science as “co-dependent on each other to help translate and/or provide critical context for their respective products and activities . . . to catalyze interdisciplinary exchange and a new genre of experimentation that will move beyond what one of these disciplines can achieve on its own” [1].

So what happens when you invite so many artists to a meeting otherwise committed to “just science”? What might artists offer scientists (or scientists offer artists) at such a meeting and perhaps to each other’s creative cultures more generally? And what might the framing of an “interface” of art and science itself presume? These were just some of the issues we set out to explore.

Jamie Gillooly spoke from first-hand experience within the interface in his talk. As an associate professor of biology at the University of Florida, Gillooly participated in an innovative program in which he was a “scientist-in-residence” for a full year in the university’s College of Fine Arts, taking part in a series of interdisciplinary classes, lecture series and exhibits. The subsequent, reciprocal placement of art faculty as artists-in-residence in science departments aimed to bring the interaction full circle. He was able to give an important perspective inverted from the more usual structure of artists coming to work with scientists, recounting his trajectory of experience from his initial motivations, challenges to his disciplinary assumptions and even epiphanies concerning not only his own art-science experience and its significance to his work but also the ways that it might be meaningfully shared with his scientific colleagues.

Natalie Jeremijenko, associate professor of Art at New York University, gave an overview of her various projects, which typically tend to pose new possibilities as neither art nor science per se but rather as hybrid proposals that are equal parts empirical and speculative; technological and aesthetic. In this way, her talk had the potential to move beyond standard binaries and the expectations that come with them. Jeremijenko’s practice confronts what Director of Cultural

Andrew Yang (artist, educator), School of the Art Institute of Chicago, 36 S. Wabash Avenue, Chicago, IL 60603. Email: <ayang@saic.edu>. Web: <www.andrewyang.net/>.

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Programs at the National Academy of Sciences JD Talasek has observed to be the “biases, territorialism and lack of understanding of what is meant by the terms ‘art’ and ‘science’ that haunts the discourse overall by confounding the conventional categories of what many might typically consider ‘art.’” Echoing Bidle’s sentiments, Talasek also sees the goal of the interaction as “figuring out working relationships that push both disciplines to achieve more than what they can do separately.”

At the same time, Talasek also notes that perhaps framing the interface around generalized terms such as “art” and “science” in itself muddies the conversation and instead the focus should be on collaborative problem-solving—both creative and practical. Perhaps Jeremijenko’s diverse but specific engagements with issues of urban ecology and environmental health propose just such a possibility.

The symposium also included poster sessions in which all participants could take part. Some presentations by artists during these sessions continued to blur otherwise predictable boundaries of art and science, while others sought to make use of what the distinctions could reveal. These included presentations by Brandon Ballengée on his long-running amphibian research; Roger Malina discussing the Science, Engineering Art & Design network (SEAD); Richard Pell and Lauren Allen on their Center for PostNatural History; art-and-technology projects by Andrea Polli; and Sara Schnadt’s diverse body of work spanning the worlds of performance and data visualization.

CATALYSIS

To the extent any of this may be true, the KFoS symposium would seem particularly suited to explore such questions, given that its stated goal is “to provide many opportunities to explore ideas and techniques from a variety of disparate fields.” One reason this is possible is the size of the symposium—I had never experienced a scientific meeting that was both inclusive of so many fields while operating on such an intimate scale. This by no means guarantees that high-energy physicists will have much to say to biomedical engineers, and in this regard the inclusion of artists might have contributed positively to this unique scientific meeting. Jamie Gillooly argues that

having artists and scientists together at a meeting changes the nature of interactions among scientists. Scientists in this setting feel more open to share unconventional ideas and be more philosophical. They often reveal their own personal interests in art or self-expression and reflect on the nature of scientific research.

Although this was my first time at any KFoS event, I was surprised the extent to which Gillooly’s claim appeared to ring true. The presence of artists and the art-science session seemed to act as a sort of interdisciplinary bridge and catalyst. Not only did a number of talks after our art-science interface session make reference to art and issues of creativity, interpretation and aesthetics, I also noticed that these themes became a common entry point of conversation among scien-

tists of very different fields throughout the rest of the symposium. Having attended any number of scientific meetings in which people of different subdisciplines rarely find motivation to interact, it was remarkable to see art and questions of the art-science interface functioning as a sort of *lingua franca* across such a diverse range of scientists. To the extent that the impact of any meeting is finely balanced between the structure of the pre-planned formal presentations and the dynamic of spontaneous informal conversations that expand in the spaces in between, the presence of artists did seem to make a real contribution to interdisciplinary dialogue within the sciences itself.

Schnadt echoed this observation when I asked her about her experiences at the symposium, noting that

the artists who were invited to participate were received by scientists not as rare birds or novelties (as I thought we might be), but as valued contributors to the dialogue . . . in reality the artists became a kind of catalyst for interdisciplinary conversations—as “outside eyes” to the work of everyone else there.

It is interesting to consider how such a dynamic might serve to address important questions that Talasek had raised with me in a separate conversation:

I think that the data on the benefits of artists helping to communicate, educate and raise excitement about science is fairly established, and that alone is an area worthy of exploration. But with a growing number of artists becoming better informed in matters science-related, I think the larger question is to what extent can artists contribute to knowledge production in the sciences.

Although catalyzing discussion among scientists of diverse fields may not be considered a form of knowledge production per se, it would seem to be a meaningful primary step; indeed the whole premise of the KFoS in bringing top scientists together is to create the potential for just such possibilities. Perhaps what artists bring to the conversation isn’t necessarily “creativity,” as seems to be frequently claimed (scientists are plenty creative on their own), but instead another lens with which to consider the larger questions and premises that are just as vital to long-term discovery, but which scientists focused on highly technical “puzzle-solving” might not have much of an opportunity to otherwise be challenged to reflect or reconsider. One could catch some of these possible moments at KFoS meeting when, for example, during a session on biodegradable biomedical materials, Jeremijenko asked a speaker, “Have you ever tried to eat this material you’ve created?” The goal may be to find not just new solutions but also new questions as well as a reframed engagement with science as wider cultural practice.

FURTHER STILL

Everyone that I talked with shared a similar, positive energy about the participation of artists at the KFoS meeting. The organizing committee’s inclusion of artists and an art-science interface in the symposium was a first, both

risk-taking and forward thinking. “The fact that the organizers of this conference included the art-science interface suggests that this is fertile ground for exploration,” observed Talasek. The KFoS’s focus on bringing together young researchers (recent PhDs and under-45-year-olds) seemed to be structured with the understanding that interdisciplinary possibilities are what need to be nurtured early in one’s career, not just in twilight reflection after one’s “real work” has already been accomplished. We may hope that artists have future opportunities to engage with KFoS community. Ideally artists also have future opportunities to engage with KFoS community.

It is worth recognizing that, like many recent art-science interface opportunities, this first KFoS experience was one in which artists still were largely in the position of “visitors to science.” Arguably this was even true of high-profile programs like the Sciart collaboration initiative sponsored by the Wellcome Trust in the U.K., which aimed toward equal partnership between artists and scientists but still may have had asymmetries born from differences in expectations, professional investment and funding. While it is still unclear what methods of evaluation might allow us to best assess the benefits of interdisciplinary interactions between artists and scientists, it might be crucial that the context of the engagement be one of equal footing. Without a structure that allows for the possibility of balanced reciprocity and shared investment, it will be hard to know the full range

of opportunities and constraints that may exist. As Schnadt came to suggest:

Rather than an embedded artist in a lab or a featured science speaker at an arts event, an ideal scenario would be a forum where the ground is neutral—where scientists and artists can exchange equally via formal presentations, shared projects and opportunities for informal conversation. The Kavli meeting demonstrated very well that a few guidelines about using accessible language can create an environment that is conducive to cross-discipline exchange and collaboration. This strategy could easily be extended to an event that combined art and science in equal parts.

This sentiment was shared by all of the artists who attended and suggests a possibility that is waiting for the proper experiment: If progress in fact occurs through novelty, perhaps a program (yet to be conceived) could bring together a diverse group of artists and sciences in the way that doesn’t insist on any particular outcome but closely tracks and documents its process together with the life of the connections that grow from it. The idea of progress through novelty recommends that we continue to rethink the art-science interface itself—its assumptions, potential formats and how generative and meaningful possibilities can be nurtured on its horizon.

The complete version of this paper, including References and Notes, can be found online at <www.mitpressjournals.org/toc/leon/49/5>.

Reference

- 1 “The Art-Science Interface” symposium abstract, The Kavli Frontiers of Science Symposium, 2013.