

Augmenting science through art

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ABSTRACT

Augmenting science through art is a call for accepting and empowering art as voice for communicating scientific results. Naturally, science achieves credibility rather by use of terminology, unemotional intersubjectivity and talks limited to introverted circles than by entertaining. Art-science residencies are now an opportunity to fulfill the mandate of opening up towards the society.

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The mission of teaching science to non-scientists has a long tradition. Museums of natural history used to attract people's curiosity for the uncommon, extinct or traditional. Yet information oversupply – ranging from distinct channels like National Geographic on TV to online encyclopedias like Wikipedia to the internet in general – has put the classical idea of a museum, which one has to visit physically, at a disadvantage in terms of accessibility. However, some museums, such as the Swiss *Technorama* and the Singaporean *ArtScience Museum* did not wait and suffer in silence. Instead, they found a way of integrating new media and utilizing the advantage of direct, real interaction between non-scientists and scientific knowledge. All these efforts are aiming to free the scientists from their isolation, their ivory tower of terminology and experts only gatherings behind closed doors. There is no doubt over the success story. The collaboration between science and art brings science closer to the people. As a scientist, the inverse I believe is still missing: bringing art into science in order to improve the scientific process.

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Science nowadays is a business. Polymaths like da Vinci or Leibnitz have given way, due to a tremendous increase in human knowledge and manpower, to the mass-parallel solution as is found in China's over 130,000 PhD graduates per year (Ministry of Education, n.d.)¹. Certainly there are many academic fields that require this kind of ant colony approach, where the number of workers and their average productivity determines the achievable workload. I believe instead that true innovation needs a different offspring, fed by creativity and kept small in number in order to stimulate excellence, of which art is one of three necessary nutrients. The other two are in-depth knowledge of the particular field of research and interdisciplinary capabilities founded on a knowledge stock – including scientific methods, history of science and the communication skills for a high-level debate.

Why is art crucial for the success of science? The quality of science has been and is understood in terms of the intersubjectivity of academic knowledge, performed in double-blind studies and proved in a peer-review process. Anonymous chunks of information have been created by individual scientists; transcendental entities of potential truth, waiting for the public to spot them, finally becoming accepted and spread widely. This understanding of science is comparable to Foucault's concept of the archive, where the archivist fulfills the dual role of being the keeper of hidden knowledge (deep inside the archive) and being the mediator towards the public. Scientists in my view behave similar. On the other hand, Foucault as a person is a well-known humanist and it seems challenging to divide him from his writings as intersubjective chunks of truth. It is debatable whether knowledge acquisition actually is intersubjective in general, or should be. Modern scientists can even become celebrities. Watch the authoritarian style of Neil deGrasse Tyson or listen to the controversial figure Richard Dawkins. Both are scientists who are sometimes called "science communicators" because they reach an extended audience. They indicate a trend towards the need for expressive skills to enhance the credibility of science, compared to the conventional role of the scientist as an expert, a grey eminence. Sarcasm, overstating, irony, fun and joy are attributes connected to this new style of communication in science, beyond the sterile world of formulas, axioms and symbols.

Artists emphasize creation and the creative process as the fundamental aspect, and they are well aware of the role allocation between the artist, his created object (artwork) and the audience. In contrast, scientists usually have an ambivalent attitude to their contribution in science, personalizing the light

1. PhD graduates 50'289 in 2010, est. 132'384 in 2011

bulb moment in the most prestigious journals, but circulating it within this very process to maximize universality. Relinquishing is a mandatory step here, opening the finding or idea to the public.

Still, it is more than simply that. Art is an amplifier for knowledge. Art can be a creator of knowledge as well. Da Vinci – commuter across the border of science and art – was an eager observer, and while studying nature he re-framed his thoughts in sketches, drawings and innovations. Mimicry of natural phenomena is not pure innovative out of creation (creation ex nihilo), in the truest sense of the word. Rather, the innovation lies in changing the viewpoint, re-exploring the already achieved. Finally, art is generally less planned than science, as the creative process is often based on non-deterministic conditions. Art residencies are offers, greenfields for creativity; research projects are planned, deliverables and key performance indicators (KPIs) acting as milestones throughout a project's lifetime. Food for thought is the promise of patents and spin-offs as part of a research proposal, defined in quantities and not in qualities. Simply renaming meeting rooms into incubators does not create the breeding grounds for creativity; rather, creativity is a cultural attitude and freedom of expression that is allowed to transgress conventional boundaries. Beauty, as one of many aspects of art, is not a matter of optimization; rather it can require abundance or even waste. Inspiration might not prosper in cubicles with fixed hours in an office. Science should not be an office job.

Art as activism, even going into the direction of political campaigns², can be an example for science, because research is embedded in the real world and this world is one of moral values and judgments. Albeit pure scientific publications can be value-free, a researcher should carry out his investigations as if it was not the case. To keep credibility and objectivity, science needs independent funding sources and not lobbies. Governmental institutions for coordinating and funding of research are paid directly by the taxpayer, therefore scientists have the duty to at least reflect on their work in terms of what the public interest or opinion actually is. Scientists, like artists, are extraordinary people. The movie *Contact*³ reminds us of that fact, when both Jodie Foster in her role of *Dr. Arroway* and the scientific paradigm itself are asked whether they are valid representatives for the entire human species.

Art-science hybrids, art-science residencies and recently, science-art residencies (a scientist visiting and working among artists) are opportunities for

2. See Nina Felshin "But is it Art? The Spirit of Art as Activism", 1995 Bay Press, Seattle.

3. Jodie Foster playing Dr. Ellie Arroway was not allowed to establish the first interactive contact to a potential extra-terrestrial intelligence even so her research was crucial for enabling the contact, since she was a non-believer on a planet with a majority of believers: www.imdb.com/title/tt0118884/

both sides to gain inspiration and learn from each other. More attention, and of course, more funding, towards this approach would benefit the scientific community both internally and externally. Art and knowledge, both want to be shared.

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