

The New and History

art*science 2017/Leonardo 50 Proceedings

Pier Luigi Capucci, Giorgio Cipolletta (eds.)

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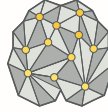
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A few notes about art*science 2017

di Pier Luigi Capucci

art*science 2017/Leonardo 50 International conference was keen on the relationship between artistic and scientific disciplines and celebrated the 50th anniversary of *Leonardo* journal, published by MIT Press, the most influential in the international arena on the relationships among arts, sciences and technologies. art*science 2017/Leonardo 50 general topic was “The New and History”. The “new”, the “innovation”, have roots in history but they can project this heritage into the future thanks to the collaboration among arts, sciences and technologies.

The conference main topics were:

1) A reflection on the idea of “new”. What is really the “new”, what is the meaning of “new” and “innovation”? Today it is a very inflated issue, everything must be “new”, “innovative” to get attention, to be considered by the media, to get money. What is the meaning of “innovation” for a scientist, an artist, a philosopher, a sociologist, a researcher, a banker, a CEO, an athlete...? What does “innovation” really mean? How can “innovation” be recognized, communicated, fostered, sustained and spread?

2) The relationship between two concepts seemingly in opposition, that instead can and must coexist. The “new”, “innovation,” has its foundation in history, but it can and must revive its heritage in the future, through arts, scientific disciplines and technologies. This is a key element, from cultural, historical, social and economic viewpoints. The Countries in the Mediterranean Rim, and more in general all European countries, have a long history and heritage in art and culture, that can be valued through new disciplines, sciences and technologies.

3) The integration of arts, design and humanities into science, engineering and medicine, sometimes called “Stem to Steam” in the USA (STEM: Science, Technology, Engineering, Medicine; STEAM: Science, Technology, Engineering, Art and Design and Medicine). This is a historical discussion on the need for an inter/trans-disciplinary problem driven research. Among recent approaches on this topic the idea of “consilience” by Edward O. Wilson (*Consilience: The Unity of Knowledge*, 1998), and Slingerland and Collard’s perspective (*Creating Consilience: Integrating the Sciences and the Humanities*, 2011, editors).

Some weeks before the conference beginning the topics of art*science 2017/Leonardo 50 were introduced by a discussion on Yasmin, and were relaunched through-

out the events. Yasmin is an International mailing list, supported by UNESCO, *Leonardo* and *Noema*, born in 2005. It is collaborative project of a network of people and organizations, artists, scientists, engineers, theorists, scholars, students and institutions that promote communication and collaboration in art, science and technology in the Mediterranean basin regions. Many thanks to the invited discussants/respondents who animated the discussion, moderated by Roger Malina, Nina Czegledy and me. They are Elif Ayiter (Turkey), Wafa Bourkhis (Tunisia), Roberta Buiani (Italy), Salvatore Iaconesi (Italy), Pau Alsina (Spain), Giorgio Cipolletta (Italy), Katerina Karoussos (Greece), Živa Ljubec (Slovenia), Oriana Persico (Italy), Elena Giulia Rossi (Italy), Judith van der Elst (Holland). Some of them also participated to the conference. And of course to all the other people who gave their contribution to the discussion.

art*science 2017/Leonardo 50 conference was also the opportunity for a meeting among the participants to Yasmin mailing list.

I personally want to thank art*science Board, my partners of La Comunicazione Diffusa, who hosted the events, *Noema*, the Italian Ministry of Cultural Heritage and Tourism (MIBACT), Leonardo/ISAST, the Majority of Bologna, the Guglielmo Marconi Foundation Bologna and the Festival della Complessità, Rome, for the patronage, the partners, media partners and technical sponsors. And all the people who helped in organizing, managing and making the events a success. While I wrote this notes we are working on art*science 2018 edition, stay tuned on the official website, <https://artscience.online>.

What Is New Under the Sun: Oral Futures to the Rescue of all those who worry

Roger Malina

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<http://www.olats.org>

<http://www.arteca.mit>

Abstract

Fifty years ago a group of artists, scientists, engineers and scholars created the Leonardo Journal. They advocated the use of science and technology in the arts to create artforms that responded to the contemporary situation; and collaboration between art science and technology to re-imagine the science and engineering of the future. They also advocated also that artists could write about their work and carry out research. Today we see a large international creative community carrying out this work, with involvement of the universities and the civil society. In this talk I will talk about some of the current emerging areas of practice, and new methodologies including deep involvement of the design professionals; these range from transdisciplinary practices with multiple goals, appropriation of biomedical technologies to rethink health and well being practices, to the use of nanosciences and smart materials, and issues of biodiversity and climate change. Using the delphi method , the leonardo community of practice is shaping the goals and methods of Leonardo for the coming years.

Biography

Roger Malina is an art-science researcher, astronomer and editor.

Distinguished Professor of Arts and Technology and Professor of Physics at the University of Texas, Dallas. He directs the ArtScilab which develops artscience collaborations that lead both to scientific discoveries and intense contemporary art works. The Lab runs initiatives in Experimental Publishing with MIT press which seek to develop new forms of scholarly publishing and public engagement through the arteca platform. Former Directeur de Recherche of the CNRS in France and Director of the Observatoire Astronomique de Marseille Provence at Aix-Marseille University. His scientific specialty is in space instrumentation and big data problems; he was the Principal Investigator for the NASA Extreme Ultraviolet Explorer Satellite at the University of California, Berkeley. Founded the Leonardo organizations whose mission is to promote and make document work that explores the interaction of the arts and sciences and the arts and new technologies (STEM to STEAM); he is the Executive Editor of the Leonardo publications at MIT Press. He helped set up the Mediterranean Institute for Advanced Studies. He is an elected member of the International Academy of Astronautics.

The fiftieth anniversary of the birth of the Leonardo Journal presents a good opportunity to look back and look forward. I recently worked on a project with our Physics Department at the University of Texas at Dallas where we recorded “oral futures”; physicists discussed results they would be publishing 50 years from now. It would be fascinating to have access to the oral futures of the founders of Leonardo Journal, speculating on the state of the arts and society today.

A contemporary dichotomy in western, and other, academic and industry circles is articulated between science-engineering and art-humanities. At the time of the founding of Leonardo, this was very much within the framing provided by C.P.Snow’s articulation of the ‘two cultures’ problem. The problem persists today, although I argue that the two cultures framing is a false dichotomy. This dichotomy can take different forms; for example, hard and soft, quantitative and qualitative, logical and creative, objective and subjective, and so on. Many of these are false, or oversimplifying, dichotomies or reductionist thinking that have lessened our human ability to solve complex problems. These dichotomies are not new. As pointed out by Joe Davis (Leonardo Journal, 2018 in press), the roman polymath Marcus Vitruvius Pollio advocated many of the holistic approaches being debated today.

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I was asked at the Leonardo 50th Birthday party in Bologna, organised by Pier Luigi Capucci, for topics that maybe I’m worrying about. One of the things that upset me is: I’m an astronomer and in the last 10-15 years we discovered that most of the universe is made of dark matter and doesn’t emit light. And so astronomer are that wrong kind of intelligent beings to understand the universe, we have the wrong senses and this implicit bias led us to a totally wrong concept of what the universe consisted of. If we were designing an intelligent being that is able to understand the universe, the last thing we would do is design a human being. The same goes for universities.

And so I make an analogy between that and what Poe Johnson and I called “dark culture”; you have these systems to tell us what’s going on but almost all the interesting stuff is dark and doesn’t reach universities. Popular culture is full of innovation today, but all our institutions are designed to see things that are very visible today using the kinds of tools that academics develop. Leonardo Journal is an example of a biased telescope that focuses mostly on the work done in universities. I think there’s a deep similar problem now in the dark culture as there is in astronomy. Certainly at the time of the founding of Leonardo Journal, that community of practice was ignored by institutions of culture and higher learning, but our culture today is heavily influenced by the work they did. Leonardo Journal has published over 10,000 new emerging Leonardos.

I think we are going through another deep transition at the moment, where the amount of sensory input we get through instruments is now exceeding that that we get through our senses, and I think this is a new situation. Stiegler likes to talk about that we still tend to think of technology as tools or extensions of ourselves, but instead he says

we need to think about these new technologies as organs, that actually symbiotic with our own development and not extensions of human faculties and many of these tools now have senses that we don't have. We now talk of the 'data body' which contains all the data that we can now collect using medical instruments. This data reveals phenomena inside our body that we have no sensory access to. Fifty years from now how will we live with both knowledge of our physical bodies and the world accessible through our senses, and to our data bodies that know things our physical bodies don't. I think that this data culture and the dark culture are two things group maybe interlinked but for me make me worry that we don't have adequate oral futures discussions among us. Our podcast platform Creative Disturbance is one place where we hope to promote oral futures.

I have other worry topics. One is transdisciplinary collaboration. All our institutions are set up to identify individuals and reward individuals. But all the complex problems we are working on now require groups of people to work together. We still get Ph.D.s to individuals not to teams, the Nobel Prize is awarded to very few individuals, not to teams, and so how we change all our methodologies of how we train people, reward people to go from the individual genius, which is our model with Leonardo da Vinci, to how a team of people can display genius. And I think that's a tough problem given the complexity of the problems that we are trying to solve. Alex Topete in our lab is working on developing apprenticeship training for transdisciplinary collaboration, but how do you do this in a natural ways to train teams not individuals? How can universities award PhDs to groups that demonstrated innovation and excellence in transdisciplinary research?

Another one is which is maybe it's kind of obvious, but I think we haven't thought about it enough is in our societies, and certainly in Europe and America, life expectancy has increased. I now have many colleagues who are 80 and they're still in full professional activity but our universities want to have nothing to do with them. They close their email accounts, get them out of the office and so one of the world's growing resort resources is retired professionals, as David Peat has argued. In France I was made to retire when I was 65, well maybe I still have another career ahead of me, and our societies are not all organized to take this into account. They are organized around middle age cultures. So I think there is an interesting problem of how we change our social structures to make sure that we have intergenerational communication, creativity, innovation and discussion going on. This is a point that Leonardo board member Nina Czegledy has championed through the Leonardo 50th birthday parties.

The final thing, and many people have written about this, is it is clear that there are a number of things that are going on at the moment in the world, which are happening quicker than one generation. In the past when the climate changed- people moved, and the climate did not often change in a hundreds years, it happened over a longer period, and so people migrated to another place. Now on our planet, we have migrated everywhere we can migrate, so there's nowhere else to migrate to, except outer space and I don't think that's a useful solution in the current situation. So these changes that are happening within a generation or two generations, and so we need to actually redesign our culture. Anne Balsamo has written extensively about this. A situation that no human culture has ever been before , except when a meteor wiped out 90% of the life forms,

and then no one redesigned the species and their social structures. Most changes on this planet have been on time scales that are longer than one generation or two generations. Climate change presents an opportunity to actively redesign our culture using design methodologies.

And so as we try and develop oral futures for Leonardo, my five topics are: inter-generational communication; redesigning culture; dark culture and data culture; and the emergence of transdisciplinary Leonardo teams not individual geniuses.