ROGER MALINA

What are the Different Types of Art Science Collaboration

Posted by admin on 29 August 2010, 7:45 am

We propose to develop here some kind of breakdown of the different kinds of art science collaboration as an aid to analysis, while recognising that this set of categories is not 'orthogonal' and many projects involve several types.

W also seek to collect other examples of categories of art science developed by other authors.

This typology is designed to highlight the benefits to science and engineering of art-sci collaboration.

Other typologies would highlight the benefit to the arts and humanities. These many overlap but not be identical (for instance attracting more people into science and engineering may be one possible art-sci benefit, but this is not a direct benefit to arts and humanities except in context of societal development as a whole).

We are uncomfortable with the art/science binarity that underlies this analysis which would require additional explanation.

C: Typology

Types of scientists or research engineers "deeply engaged in the arts and humanities"and as a result there is a benefit to science and engineering :

Type I: Scientists and research engineers who collaborate with artists on common projects resulting in both scientific discoveries as well as the production of art works.

Type I a: Where both outputs occur.
Type I b: Where only the scientific output results

Success Metrics:
Scientific Publications with artists as co -authors

Art Productions with scientists as co authors

Underlying Rationale: Creativity Theory

From Welcome Report:
i) Sciart projects prompted scientists to alternative ways of thinking and perceiving.
ii) Scientists became more innovative and prepared to take risks.
iii) In some cases, the scientists became active collaborators in the (artistic) creative process
From Root Bernstein:

A) By providing novel phenomena for STEM investigation (e.g., Gestalt imagery; moiré phenomena; visual, aural spatial and tactile illusions);

B) By inventing novel structures for STEM development (e.g., origami; geodesic domes; tensegrity structures; kaleidocycles; aperiodic tilings);

C) By inventing novel processes and techniques useful to STEM disciplines (e.g., anamorphosis; pixilization (Pointallism); false coloring (Fauvism); silk screening; etching; shadowing; abstraction [Niko Tinbergen's work on animal behavior]; etc.);

D) By providing fruitful analogies (Planck and De Broglie both made breakthroughs by thinking of electrons as analogous to tiny musical strings and exploring the musical consequences; a Miro biomorphic painting inspired preimplantation genetic diagnosis; Desmond Morris developed many of his evolutionary theories by analogically exploring them in his painting);

E) developing acute observational and related skills (Roger Kingdon has only a degree in painting but is an Oxford professor of zoology)

F) artist exploration reveals aspects of patterns not obvious in scientific formulations of data (Eric Heller, Harvard chemical physicist claims several discoveries made after transforming data sets into art);

From Naimark:

2) these projects often act as magnets to bring together unconventional combinations of skills and talents;
5) these projects may lead researchers down unforeseen paths and result in new discoveries and intellectual property;
6) external deadlines and public scrutiny serve as forcing functions for decision making, rigor, and completion. They keep us street-smart. "Putting on a show" is a test bed for new ideas, a simulation of the real world.

Type II: Scientists or research engineering who apply their scientific research to understanding creative activity in the arts, where artistic activity is a research area that illuminates the scientific domain .

II a) Carried out in collaboration with the artists and not just using the artists of humanities domains as "subjects".

II b) Where the work of artists is used a domain of scientific research without collaboration with the artists or humanities scholars involved.

Success Metrics:
Impact on new arts and humanities developments: how to measure ?

Other Authors:

.From Naimark
4) some of these projects are means for collecting data about human behavior, both through explicit query as well as through observation;

Type III: Scientists or Research Enginers, working with artists or humanities scholars, who develop technological inventions

Success Metrics:
Patents filed by jointly scientists and engineers that include artists as co inventors

Underlying Rationale: Innovation Theory

Other Authors:

From Root Bernstein:

G) by posing problems unsolvable by current technologies (Bell Labs employed artist Lillian Schwartz to pose artistic challenges that required development of novel technologies)

From Naimark:
3) they can provide content to test tools (and even tools to test content);

Type IV: Scientists or Research Engineers with dual careers both as working scientists and exhibiting artists.

Note: this is the classic/romantic model of the individual genius

Success Metrics:

Underlying Rationale: Creativity and Innovation Theory

Other Authors:

Type V : Scientists or Research Engineers who engage the arts and humanities to enhance cultural appropriation of science.

Success Metrics:

Underlying Rationale: Societal Benefit

Other Authors:

From Naimark:
1) art projects provide stimulation and provocation to our research community, adding meaning, entertainment, and emotional resonance to our work;

f) Type VI: Scientists and Research Engineers who engage the arts and humanities to improve the ways that science and engineering are communicated to the public.

Metrics:
Young people attracted to science and engineering
Science Literacy of General Public
Informed Public Policy

Underlying Rationale: Societal Benefit

Other Authors:
From Welcome Report:
i) Working with artists helped to improve the Œimage problem[1] of scientists.
ii) Participation in Sciart projects enhanced scientists[1] communication capacities.

TYPE VII ??

All Comments and Criticism or alternative schemes solicited

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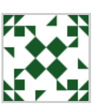
3 Comments



Greg Rivera
September 21, 2010 at 4:09 am

Five major purposes of artscience research are to:

1.Characterize artscience through case studies
2.Identify changes or trends in artscience quality over time
3.Identify specific existing or emerging artscience challenges
4.Gather information to design specific artscience programs
5.Determine the scope of private/public artscience programs needed

Viewed from a community development perspective four groups of action research and development come into focus:

1.The formation and study of other artscience communities and its energy flow with a focus on the challenges to humanity.
2.Entwined dialogue and clustering around tasks or ideas can be represented in many ways, for example as slices in 3D form, or dynamic forms. It is this design that represents the microcosm of a human systems with its interactive parts, navigation, and interactive parts.
3.Non-spontaneous mode, module enabled, meme driven at times and "structured in nested fields of hierarchies." In this sense memes (Sheldrake, 1988, p. 242) and morphic fields work together to first reinstate an understanding of artscience and then to recover and tune into its memory of an integral organization of artscience knowledge systems.
4.An application of evolutionary artscience and its continuing research is policy research and development for the potential of a transforming humanity conscious of its stewardship of the biosphere.

Future artscience research can have a significant impact on societal transformation in three areas. First, this research can sensitize an urban and theoretical global community to life and death local issues and thus localizing global thinking in practice. From a local perspective it can bring attention to a local but persistent challenge to a global community with resources and an overarching coordination effort. In this reciprocal approach we can meet strategically significant public educational goals to provide social attention, local, regional, and international resources, stakeholders' logistics, technological capacity, multi-disciplinary opportunity, and transcultural impact. This also provides a way to meet economic challenges. It can have a significant impact on identifying transcultural learning through artscience communities and its need to network.

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roger malina
December 24, 2010 at 3:00 am

Greg
I like the kind of vocabulary you are using and the way you are analysing=i am bothered how art science discourse tends to binarise art vs science, when in fact we are now in a networked culture environement = i am not sure the terms trans, multi or inter discplinary are any more the right way of thinking and we need new 'networked knowledge"= I am not particularly a fan of Sheldrake , but indeed 'nested fields" is another way to analyse the issues. One problem with the very cartesian way i have defined art science

interaction in this text is that it structures the analyses in a way that goes counter to 'nested fields". Roger

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Amanda Wilson
May 2, 2011 at 11:09 am

A possible addition to the Success Metrics section of Type IV's:
Unique perspectives of bi-disciplinary individuals may lead to new or extended areas of discussion/output. These may be distinct from the insights/works that are likely to emerge from collaboration between 2 or more individuals from discreet disciplines.

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