

Alternative models for research/creation in the digital world

Between interdisciplinary artistic experimentation, new educational paradigms and technology-based cultural industries

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Introduction

Scientific research, technological innovation and artistic creation represent three different “areas” that seemed to be well established in the western culture during the last centuries. Nevertheless, because of a real interest, necessity or fashion, these fields have met again and are now associated to continue deepening the cultural changes caused mainly by our use of recently-evolved electronic technologies.

Interactive cinema, robotic art, *intelligent* fabrics, hypermedia narrative, 3D rapid prototyping, motion capture, immersive surroundings, new interfaces and paradigms for music creation and performance, 3D cooperative virtual worlds, to mention a few examples, take us from the new technologies to a new way to do, to create and to re-create.

Considering this renewed communication between art, science and new technologies, and the intercrosses between aesthetic experimentation, formal education and the cultural industries, the last one being a growing and excellent economic sector: Do we have the necessary models of action and interaction to take advantage of the potential for this possible strategic alliance?

My presentation “Alternative models for research/creation in the digital world. Between interdisciplinary artistic experimentation, new educational paradigms and technology-based cultural industries” will be approaching artistic research/creation, education and the cultural industries in our contemporary *western society*, analyzing the models of some international organizations and proposing simple and clear strategies to use better our local resources and build wide and deep channels for collaboration at the international level.

Case Studies

Several programs being developed in Canada, Peru and Argentina keep in common their focus on media arts research/creation, dissemination and training/education.

In Montreal, Hexagram, the Canadian largest interuniversity consortium devoted to media arts and technologies, supports research/creation projects and works to develop links with the industry. Hexagram members have access to an annual round of financing as well as to seed money for the start-up of new projects or their completion. They also have access to an exceptional infrastructure and a large amount of sophisticated and up-to-date equipment. Hexagram has an important budget with funds coming from the public sector as well as private donors.

Far from there, in all sense, is the Amauta project affiliated with Centro Bartolomé de las Casas in Cusco, Peru. It has a small digital media centre with a few workstations and a very small team coordinating all the activities. Amauta serves the mestizo and rural communities from the Andean region around Cusco. All activities are free. The Amauta project has been supported by donations, a few grants and the Bartolomé de las Casas Centre itself. Most lecturers get their travel resources by their own and do not ask for any fees for their work.

The Electronic Arts Experimenting and Research Centre (CEIArtE) at National University of Tres de Febrero in Buenos Aires, could be positioned in the middle between both precedent projects. It serves the academic community with its research/creation projects, as well as the community at large through its dissemination activities. CEIArtE is supported by the University and has very limited resources to operate.

All these projects are producing positive results and in spite of huge differences between them in terms of human and financial resources they are producing an impact in their surrounding society.

About Argentina's e-culture and education

Argentina is an active place for contemporary art using innovative technologies, and has a rich heritage concerning the media arts, too.

There are examples of artists developing their practice working closely with engineers already several decades ago. An interesting case is that of Fernando von Reichenbach, that was conceiving and building special devices for creation and performance since the 60s. He built the Analog Graphic Converter, used by composers to convert graphic scores from a paper roll into signals adapted for musical uses, capturing the original drawing images with a camera to control an analog electronic oscillator.

Concerning the last years, worth mentioning some programs focused on education and research founded on the concept of developing a new generation of professionals that could be able to understand, reflect and work on the cross-road of the arts using innovative technologies and sciences:

- The Musical Production program conceived at ORT Technical School in 1992 was an example of interdisciplinarity where art, science and technology were finding their way together with an educational objective. Mathematics, physics and biology were melding well with composition, keyboard practice and music history while learning also recording, sound synthesis and processing, and multimedia techniques. The results were amazingly positive and were clearly showing the rich possibilities of this approach for students at the high-school level.

- Starting its development in 1996 at the National Institute for Technology Education - National Ministry of Education, Science and Technology of Argentina, the Multimedia Communication vocational pathway represent the first major attempt to create a program including a well balanced mix of art/design, science, management and technology. Educational institutions all along the country have been implementing this program. The national standards for multimedia education created along this competence-based education program are an international historical landmark in terms of new media education.
- The National University of Tres de Febrero (UNTReF), a public institution with most campuses placed out of down-town Buenos Aires, is offering an Electronic Arts program since 2000. The aforementioned Electronic Arts Experimenting and Research Centre (CEIArtE - UNTReF) focus on local and international media arts research, creation and dissemination projects; it works independently from the Electronic Arts educational program, but its small team is formed mainly by advanced students and new graduates guided by UNTReF's faculty. Links with other local as well as foreign universities and organizations (e.g. International Society for the Arts, Sciences and Technology) are being developed and it exists a mutual interest to work on projects together.

Having been personally involved in the design, start-up and development of each of the projects itemized above, I find that -in spite of all the difficulties of our recent history- Argentina has the basic elements to go now a step further in building a clear policy to support and promote the interaction between new media research/creation, education and cultural industries. I believe positive results in terms of a better education, cultural diversity and even economic profit will result from that.

Conclusions

Argentina has a tradition in blending art and electronic technologies. It has also the people: artists, scientists and technology experts with widely recognized capabilities; and something worth mentioning, it has an avid and well-educated audience, too.

Argentina should have a major [state-supported or mixed] centre devoted to digital culture. It has fundamental ingredients to be successful getting interesting and positive results for its society. A strong interaction between art, science and innovative technologies is possible and valuable, and the media arts, direct consequence of that strategic alliance, will perfectly fit with new educational paradigms. This "team" would be able to create new paths with cultural industries that could start to promote high quality cultural goods. It is not necessarily easy to do, but if we expect to integrate different sectors of our society, if we want to build better channels of communication and understanding, if we wish to make the journey towards a better future for everyone, the investment could be nothing compared with the returns.

In Argentina we need to decide: What do we want? To take the train or just to see how it passes in front of our eyes? The intersection of art, science and technology deserve a deep reflection to, at least, take a position concerning the goal(s) to achieve as well as the possible consequences of the activities around it. Then, not only we could ask ourselves: Where do we go? And why? But also we need to consider: How do we go? And of course: Who are able, or not, to make that journey?

Future steps

At the national level, CEIArtE plan to keep expanding the research/creation as well as dissemination activities being developed. The Centre is also working to create bridges with the industry.

CEIArtE's vision is to become an interuniversity hub contributing to develop the potential of the interaction between art, science and innovative technologies as well as the integration of its positive results into our society.

From an international perspective, CEIArtE is establishing links with universities, independent experts and organizations, promoting the creation of collaborative spaces for research/creation and dissemination. In that sense, we are very interested to jointly work with the International Centre for Art and New Technologies in Prague, and the first steps in that direction have been given. We expect this international meeting will serve to provide the space for discussion and exchange of ideas that could lead us to enlarge the ties between experts and institutions from the Czech Republic and Argentina, to then share knowledge and develop research/creation and educational projects together.

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About the author

Ricardo Dal Farra (b. Buenos Aires, Argentina) has been working in the merging fields of arts, sciences and new technologies as a composer and multimedia artist, researcher, educator, performer and curator focusing mainly on new media arts and electroacoustic music.

He is Founding Director of the **Electronic Arts Experimenting and Research Centre** at National University of Tres de Febrero, Argentina; Research/Creation Coordinator of **Hexagram**, the Institute for Research/Creation in Media Arts and Technologies, based in Montreal, Canada; Associated Researcher at the **Music, Technology and Innovation Research Centre**, De Montfort University, United Kingdom; and Senior Consultant for the **Amauta** - Andean Media Arts Centre in Cusco, Peru. He has been also new media arts consultant for several organizations, such as **UNESCO** and **The MIT Press**. At the **Daniel Langlois Foundation** for Art, Science, and Technology he was researcher in residence for two periods, then he became its Official Representative and later Coordinator of the Documentation and Conservation of the Media Arts Heritage (**DOCAM**) international research alliance.

He has taught multimedia, new media arts creation and history, electroacoustic and computer music, new media research and documentation, music technology and sound design in universities, conservatories, colleges, high schools and specialized labs. He has also been designing high school, college and university educational programs integrating arts, sciences and new technologies, like the **Electronic Arts** Program for the National University of Tres de Febrero.

His recent research projects have been focused on new media arts (Multimedia Communication, national standards for multimedia education - National Ministry of Culture and Education, Argentina, 1996-2003; and REDI, multimedia educational resources, **National Ministry of Education, Science and Technology**, Argentina, with support by **GTZ**, Germany, and **Apple Computer**, United States, 2000-2001), and also on the history and preservation of electroacoustic music (**UNESCO**, 2002-2003; The Daniel Langlois Foundation for Art, Science, and Technology, Montreal, 2003-2004; and Ph.D. thesis, UQAM, Montreal, 2005).

Interdisciplinarity and the interest for bridging gaps between different cultures have always been an essential feature of his work. Mr. Dal Farra has a wide experience working in the intersection of artistic, scientific and technological disciplines. He has been a member of **Leonardo** network (International Society for the Arts, Sciences and Technology) acting in its Editorial Board since 1995.

Regarding his creative work, at present there are 17 recordings published internationally with some of his compositions. His work has been distinguished by the International Computer Music Association; the International Arts Biennial of San Pablo, Brazil; the National Endowment for the Arts from Argentina; the *Concours International de Musique Electroacoustique* de Bourges, France; the National Rostrum of Composers, Argentina; and the Centro di Sonologia Computazionale at University of Padua, Italy, among others.

He directed radio series on electroacoustic music at the National Radio of Argentina and the Municipal Radio of Buenos Aires for over 10 years; and curated several contemporary music CDs, like those published by: Leonardo Music Journal in 1994; O.O. Discs in 1998; and MIT Press' Computer Music Journal in 1999.

Dr. Dal Farra is a Fellow of Colegio de Compositores Latinoamericanos de Música de Arte, and an active member of: the Board of Advisory Editors for the Journal of New Music Research, The Netherlands, since 1988; the Executive Editorial Group of Electronic Music Foundation's EMF Institute, United States; the Research Reviewing Committee for the journal *Perspectiva Interdisciplinaria de Musica*, published by the Mexican National Autonomous University and the Mexican Academy of Sciences, Arts, Technology and Humanities; and the Advisory Board of Prague's **CIANT** Gallery, International Centre for Art and New Technologies, Czech Republic.

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