ARTICLE

NEW MEDIA, ART-SCIENCE AND CONTEMPORARY ART: TOWARDS A HYBRID DISCOURSE?

Transdisciplinary Strategies for Fine Art and Science

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Abstract

The paper will explore a connection between the historical evolution of media arts education and the re-emerging symbiosis of fine art and science. The art and science environment is rich with the potential to embrace, expand and critically reflect on culture in a post-media art context. This paper explores the potential of transdisciplinary approaches, theoretical practice and a nomadic discourse to the broader art research culture in a contemporary university framework.

Keywords

art, science, transdisciplinary, education

Estrategias transdisciplinarias para las bellas artes y la ciencia

Resumen

En este artículo exploramos la conexión entre la evolución histórica de la educación en arte de los medios y el resurgimiento de la simbiosis entre las bellas artes y la ciencia. El entorno del arte y de la ciencia abunda en posibilidades de adopción, ampliación y reflejo crítico de la cultura en un contexto de arte posmedios. En este trabajo se exploran las posibilidades de los enfoques transdisciplinarios, de la práctica teórica y de un discurso nómada sobre la cultura investigadora del arte en general en un marco universitario contemporáneo.

Palabras clave

arte, ciencia, transdisciplinario, educación

artnodes

New technologies and the body

The contribution, speed and growth of emerging technologies in media art education is unique and still partly uncharted. However, many questions now situated in the art and science arena are being explored by post-media art. This exploration needs to inform the ways emerging technological and scientific thinking is implemented into tertiary art education and therefore culture at large. Science and technology permeate our daily lives under the guise of banners such as "cultural advancement" and "creative industries". The ubiquitous nature of technology that has enabled instant communication and information exchange is often not critically addressed or analyzed within fine art pedagogy. What is taken for granted is the way that science and technologies impose a particular regime and structure on our bodies, turning the user into a complacent subject. Art and science collaborations have significant potential for exploring, critiquing and developing a transdisciplinary approach which demands a transformative role in institutional fine art education. This paper looks at the extent to which such theoretical, critical, explorative, experiential and experimental ideas generated initially in media art are now, via art and science, demanding a transformative role in institutional frameworks of art educational organisations.

In *A Cyborg Manifesto*, Donna Haraway acknowledges the impact of new technologies on our subjectivity. Rather than compounding existing misconceptions about technology and our intimate entanglements within it, she calls for a closer engagement with it (Haraway, 1991). Only direct engagement gives way to agency and interrupts the inscription of technologies on our bodies. This dual process of opening up combined with a critical engagement also characterizes the conceptual framework of Deleuze and Guattari's (1987) philosophy that can be explored for its applicability for a transdiciplinary model that extends from media arts education.

As Charles Garoian and Yvonne Gaudelius recently argued, the impact of technologies on our subjectivity needs to be examined more than ever. Working from a premise that technologies are not created in a cultural vacuum, Garoian and Gaudelius identify a point at which the technologies can be demystified, affected and resisted— because technology does not simply inscribe the body but allows the construction of body/consciousness/identity to be reconsidered. When art and science is approached in this way, we can see that emerging technologies do not simply happen to us but instead emerge out of a dynamic site of culture and critique.

I want to suggest that the models for such demystification and resistance can be found in the art and science practice of post-humanist artists, including Oron Catts, Ionat Zurr, Stelarc, Eduardo Kac, Vicotria Vesna, Char Davies and Orlan. These artists prove it is possible not only to be shaped and inscribed by information technologies, but also to intervene in the arbitrary structuring they impose on our subjectivity. Their critical artistic practices open

technologies to further critical examination. Garoian and Gaudelius refer to such a practice as *cyborg pedagogy* (Garoian *et al.*, 2001, p. 333). Contemporary biological art, for example, is reshaping and rethinking the materiality of the body from a cellular level, confronting and exploring the bodily inscription of technologies. In the area of nanotechnological art, artists similarly explore the physical world at atomic and molecular levels, exposing the instability of its immaterial substrate as it "dissolves into a posthuman network of distributed agencies" (Milburn, 2005).

Much current scholarship on Deleuzian methodologies for education argues that Deleuze and Guattari's philosophy brings into focus the crucial position that experimentation and experiential practice have in learning (Smenetzky, 2008). Deleuze and Guattari demonstrate concepts that can be used for the mapping and reconfiguration of the pedagogical landscape in light of emerging technologies.

The role of Theory

A profound shift is occurring in our understanding of postmodern media culture. "Since the turn of the millennium the emphasis on mediation as technology and as aesthetic idiom, as opportunity for creative initiatives and for critique, has become increasingly normative and doctrinaire" (Thomas *et al.*, 2010).

If we are going to critique this profound shift, then we need to implement research strategies within the fine arts that challenge past disciplinary orthodoxies and epistemological constraints, in a quest for more productive and synergistic intellectual and practical methodologies between art, science and the humanities. To explore ideas that will provide a basis for generating different and potentially more expansive understandings of complex issues, demands taking into account multiple perspectives and contingencies. Institutional modelling of alternative transdisciplinary approaches to post new media art curriculum must demonstrate the academic viability, scope and rigor of art/science.

Educator John Lutz's (1976) early research on secondary education joining art and science offers insights into the dilemma facing art education and can inform contemporary debates regarding transdisciplinary curriculum at secondary and post-secondary levels. One of the main findings was the need for theory and its alignment within course structures for improving scientific research. Lutz suggests that "a theoretical foundation has generally been recognized as a prerequisite to meaningful and advancing educational research […] If great advances are to be made in all educational science, a more active interest in and real commitment to theoretical constructs must be demonstrated by educators" (Lutz, 1976, p. 4).

Drawing on George A Beauchamp's work on curriculum theory, Lutz identifies three main areas of focus for theory—'description,

explanation and prediction'—which could fit a possible development of a practice-based research curriculum joining contemporary fine art and science.

– A theory must account for the observations of the organization of the interrelationships between variables.
– It must also provide at least tentative reasons for or causes of the described observations.
– Finally a theory must be able to allow predictions of observations from the explanations suggested.

Describing a territory from which to formulate an opinion links both disciplines to the first area of observation between variables identified by Lutz. The second domain, explanation, allows for plastic process of making to reflect upon and enrich the theory, explore techniques and material agency in a sequence of 'detours' that increase the stability of the territory. The third area, prediction, crosses disciplinary borders in imaginative or even fantastic speculations that allow for the abstraction of ideas to be distilled and processed to create the potential for new knowledge. The new knowledge would be a mutation rather than extension of humanities, a series of hybrid methodologies and a nomadic or travelling theory.

Lutz concludes that "if art education activities can influence the development of certain affective and psychomotor skills required for better sciencing, then science instructional processes could become more efficient through the transdisciplinary integration of science and art" (Lutz, 1976, p. 12). Lutz's report demonstrates that as early as the mid-1970s there was a perceived need to enrich and enhance science education through a transdisciplinary relationship with art. In 2001 Stephen Wilson identified some key points for artists in order to meaningfully participate in the world of science. Artists must "expand conceptual notions of what constitutes an artistic education [and] develop the ability to penetrate beneath the surface of techno–scientific presentations to think about unexplored research directions and unanticipated implications" (Wilson, 2001, p. 39).

The need to develop alternative curriculum is in part based on the rhizomatic growth of media art education responding to emerging technologies. Since media art is being consumed within the fine arts in Australian universities and art schools, a transdisciplinary art and science agenda has become the focus of many academic practitioners. In the context of Australian arts funding, the New Media Arts Board was collapsed in 2006 into traditional arts and crafts as the Board recognised the proliferation and absorption of media within the fine arts (Donovan, *et al.,* 2006). The current thinking on transdisciplinary education and practice is now seen in the light of emerging technologies redefining the already corrupted discipline boundaries. Fine art curriculum has to come to terms with the collapse and absorption of science, media theory and philosophy.

As the prefix *trans* indicates, transdisciplinarity concerns that which is at once between the disciplines, across the different disciplines, and beyond all discipline. Its goal is the understanding of the present world, of which one of the imperatives is the unity of knowledge (Nicolescu, 1996).

The transdiciplinary space might be analogous to Deleuze and Guattari's territory of the nomad. A nomadic methodology can be used to link fine art and science creating the potential to move from the studio and laboratory back to the earth (Semetsky, 2008). The nomadic approach is relevant as a method for transdisciplinary fine art and science research: the nomad distributes her/himself in a smooth space; s/he occupies, inhabits, holds that space; that is her/his territorial principle (Deleuze *et al.*, 1987 p. 381). Here the smooth space that the nomad exists within is a territory of 'description', which forms a territorial principle inhabited by the individual.[1] The term *description* is based on experimentation and is a theory of becoming, of describing being in the world. The nomad does not pass through a territory but takes the inhabited smooth space and researches between, across and beyond. As Deleuze and Guattari note,

> With the nomad […] it is deterritorialization that constitutes the relation to the earth, to such a degree that the nomad reterritorializes on deterritorialization itself. It is the earth that deterritorializes itself, in a way that provides the nomad with a territory. The land ceases to be land, tending to become simply ground (sol) or support. (Deleuze et al., 1987, p. 381)

In this context I would like to create a metaphorical relationship between the nomadic territory and that of the complex territory of university. Fine art and science projects that are based on nomadic deterritorialzation can allow students to move over discipline boundaries whilst maintaining the smooth space they inhabit. The smooth space creates a metaphorical ground, a territory of description. This 'description' becomes the most important component of a transdisciplinary art education concept allowing the individual/group to develop a heuristic context independent of a fixed ground. The greater the descriptive context, the more territory the individual/group has to build to substantiate ideas and to create their principles. The process of reterritorialisation creates a testing ground for the body of knowledge as an interaction with the earth. Creating a nomadic project calls for a transdisciplinary approach to be "there, on the land, wherever there forms a smooth space that gnaws, and tends to grow, in all directions. The nomads inhabit these places; they remain in them, and they themselves make them grow, for it has

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1. George A. Beauchamp states that one of the first functions of theory is description.

been established that the nomads make the desert no less than they are made by it" (Deleuze *et al.*, 1987, p. 381).

The artist Stelarc is an archetypal nomad who moves across institutions and nations and between discipline boundaries engaging in and reterritorialising ideas. The work of SymbioticA, in creating a Master's of Science (Biological Art), is academic example of the ability to create a smooth space to move above and beyond institutional disciplinary boundaries. A nomadic transdisciplinary fine art and science course would operate between, above and beyond the territory of the metaphorical institutional landscape as a holistic topographical site. The nomad/student enriched by a theoretical context can demonstrate that a transdisciplinarity methodology creates an art and science strategy that encourages new forms of thinking and creating. S/he moves above the terrain of the university stopping in specific areas to reconnect with the earth, to test out predictions. The combining of different strategies of art and science through a nomadic approach allows for the engagement in a journey, establishment of a territory and a discovery that goes beyond all disciplines and into new areas of knowledge.

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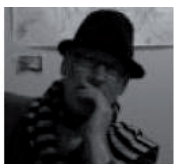
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Paul has been working in the area of electronic arts since 1981 when he co-founded the group Media-Space. Media-Space was part of the first global link up with artists connected to ARTEX. From 1981-1986 the group was involved in a number of collaborative exhibitions and was instrumental in the establishment a substantial body of research. Paul's research project *Nanoessence* explored the space between life and death at a nano level. The project was part of an ongoing collaboration with the Nanochemistry Research Institute, Curtin University of Technology and SymbioticA at the University of Western Australia. The previous project *Midas* was researching at a nano level the transition phase between skin and gold. In 2009 he established Collaborative Research in Art Science and Humanity (CRASH) at Curtin <http://crash.curtin.edu.au>.

Paul is a practicing electronic artist whose work has exhibited internationally and can be seen on his website <http://www.visiblespace.com>.

For more information about the author, visit: <https://research.unsw.edu.au/people/associate-professor-paul-rowlands-thomas>.

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