Content

Introduction

What does the Japanese predilection for tea ceremonies have to do with high-tech gadgets in science museums? What is the designer Buckminster Fuller's connection to nanotechnology? What exactly do science and technology exactly have to do with art?

Through this study on most recent artistic production, I would like to focus the limelight on how media art flirts with scientific ideas and technological development. The field of 'art and science' is currently flourishing, with a myriad of symposia, workshops, and exhibitions taking place every year which aim to illuminate the interaction of the two fields. At the same time, media art exhibitions and festivals present the newest in electronic art and its interrelationship with cutting edge technology of our time. Ever since the launch of *Experiments in Art and Technology* (E.A.T.), launched by engineer Billy Klüver and artist Robert Rauschenberg in the late 1960s, there has been an ongoing artistic interest in what science and technology can offer art – and, likewise, how art can contribute to the sphere of science and technology.

Much has been written about crucial differences, structural similarities, and striking interdependencies of art, science, and technology. Within the field of art theory, the absolute majority of positions that does not immediately turn its back on an art dependent on electronics and computers, has been eager to stress time and again how important the interaction of art and technology on the one hand and art's critical reflection of science and technology on the other hand have become for the beneficial evolution of our 'information societies'.

I want to investigate the meaning of such entanglements through two case studies. This art certainly does not arise out of the blue, I rather analyze it as being part of a present moment, or an economic situation, or

a rhetorical framework. In spite of connotations surfacing with the age-old call for its autonomy, art is integrated into current historical contexts with ensuing pre-conditions and restrictions. Media art is no exception. On the contrary, it is quite obviously a cultural practice of a society that is inevitably dependent on technology.

This study is a contribution to the booming 'art-sci' discourse, ranging from the media artist Eduardo Kac' genetically manipulated fluorescent bunny to the art historian Ingeborg Reichle's "Art in the Age of Technoscience"; from the Swiss Artists-in-labs Program to art exhibits at the Singapore Science Museum, from Ars Electronica's preoccupation with a technologized nature to the Art|Sci Center at the University of California in Los Angeles. After Gyorgy Kepes' establishment of the Center for Advanced Visual Studies at the Massachusetts Institute of Technology in 1967 – a model institution of 'art and technology', after E.A.T. and several residency programs for artists in industrial laboratories, today we witness yet another surge of cooperations in artistic creativity and technoscientific development, a world-wide trend to a great extent (although limited to the first world, as is media art in general). In many ways it is the 'Two Cultures reloaded': two cultures – arts and humanities versus the sciences – whose opposing existence Charles P. Snow so emphatically bemoaned in his speech in 1959, when he called for their unison in the face of cold-war anxieties of the future.[1] Snow re-appears in many a publication on 'art and science' today. While some call for a surmounting of the gap between the 'two cultures', others already see the communicative trench between them being overcome finally because of current art-sci and 'art and technology' endeavors.

One way to look at the interrelationship between art and science or technology is to pay attention to the media arts as the historical genesis of an artistic discipline and its emergence as part of – or parallel to – the contemporary art world. Another perspective, the one I am taking, is to have a look at art/science connections and raise questions about their significance from mostly a sociological point of view. The latter approach can be described as a close-up, perceiving selected artistic projects as representative of a broader current. By highlighting two cases – one of media art and technological development in Japan (for the field of 'art and

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1 | Charles P. Snow, *The two cultures and the scientific revolution* (Cambridge: Cambridge University Press 1959).

technology') and the other of media art's exploration of nanotechnology ('art and science') – I want to elaborate on structural characteristics of media art in general, at times precisely through dissimilarities and contrast of examples. Of course it is possible to find counter examples, cases proving the exact opposite of my point here. I deem the two cases under investigation, however, are representative for much of what is going on in media art. They will illuminate not a totality, but a significant part of the field of 'art and science' as well as 'art and technology'. The aim of my study is to engage with the current discourse despite a necessarily limited view.

In the evaluation of my two case studies I want to scrutinize actors' position-takings in what I understand is a cultural field according to Pierre Bourdieu's seminal work in this area.[2] Artists, scientists, curators, and theorists are perceived as actors in a "field of cultural production" within which they take their positions actually and rhetorically through works and words. As I will show, the protagonists' positions are dependent on various factors such as economic circumstance and academic affiliation, also on the broader societal context and even national policies.

The art sociological approach will be combined with a discourse analysis in the third chapter, which overarches the first two on a meta-analytical level. In the third chapter I will still stay close to the material unfolded in the first two in order to obtain relevant assertions and avoid unjust generalization far from the analyzed matter. It will comprise an analysis of dominant rhetorics employed by actors in the field – rhetorics that set it up, serve to consolidate it, not only in the institutional framework of media art centers, but also in academia, and that – last but not the least – allow media art's access into the annals of art historical writing. I also draw on a historical perspective in order to approach rhetorical parallels of media art and modernity as well as ontological ascriptions to the art at stake. After the first two chapters, in which I investigate position-takings of artists and theorists and how art is *displayed*, the last chapter will focus on how art is *described* and which role it plays within a historical framework.

The vast majority of contributions to the media art field in general and to 'art and technology' and 'art and science' specifically is all too often concerned with normative judgment of what is to be considered good or bad (media) art. Projects are discussed as a success in their respective

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2 | Cf. Pierre Bourdieu, *The Field of Cultural Production. Essays on Art and Literature* (New York: Columbia University Press 1993).

niche or celebrated as path-breaking for future developments. Among the
few really critical voices, others do not refrain from utter resentment of
the subject.[3] Most of the literature on the topic comes from authors linked
in one way or the other to institutions promoting media art, such as art
academies or media art centers. Protagonists active in the field – artists,
curators, directors of centers for artistic research – inevitably have a biased
perspective. There have only been very few critical analyses of the media art
in focus, of the fields 'art and technology' and 'art and science'. Lately, there
have been several contributions on art and science's recent cooperations. In
her book *Art after Science* Susanne Witzgall has focused mostly on artworks
of traditional media, not on media art.[4] She does touch upon the question
of art's role in the age of technology and upon epistemological issues
seminal in the debate on art and science, which shall also become central
for my observations in the third chapter. Witzgall, however, is concerned
with an overview of rather traditional artistic means and the artist's view
on science rather than artworks *in* the science and technology context.
Her statements thus cannot be extrapolated to the field of a completely
different art dependent on electronic media.[5] Next to conventional artworks
Ingeborg Reichle's study on "art from the laboratory" analyzes many media
artistic positions, mostly artists comprised under the term 'bioart', that is,
works related to the so-called life sciences.[6] As director of the research
project *WissensKünste* ("KnowledgeArts") at the Center for Literary and

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3 | See for example Lewis Wolpert, "Strange Bedfellows. Superimposing art
and science as kindred concepts may be fashionable, but is it justified?",
LabLit.com, July 18, 2005, online source (Dec 6, 2010): "Trying to bring arts
and science closer together is basically social snobbery, as scientists are still
envious of the status of the arts and the humanities."

4 | Susanne Witzgall, *Kunst nach der Wissenschaft. Zeitgenössische Kunst im
Diskurs mit den Naturwissenschaften* (Nuremberg: Verlag für Moderne Kunst
2003). Witzgall discusses artistic positions from Cubism to Joseph Beuys, Hans
Haacke, Marc Dion, or Damien Hirst.

5 | Witzgall comes to the conclusion that artistic positions of the 1990s
and their "relationship to the natural sciences" can be characterized by the
term 'non-modern' as coined by Bruno Latour; see ibid., esp. p. 336-338. The
research material of this study does not support this for the cases in discussion.

6 | Ingeborg Reichle, *Art in the age of technoscience: genetic engineering,
robotics, and artificial life in contemporary art* (Vienna: Springer 2009).

Cultural Research in Berlin, Sabine Flach has ongoingly published on the interrelationships of art and science. As *WissensKünste* declaredly focused on the question of how "artistic practices can be understood as a specific kind of knowledge and as interventions into the scientific discourse"[7], Flach's and her colleagues' approach of the topic starts off on this premise.[8] The fact that these three exemplary contributions to the field stem from the German-speaking academia is not accidental. It is due to the funding context in Europe, especially in Austria, Germany, and Switzerland, where media art and specifically the field of 'art and science' have been widely promoted.[9] While Witzgall, Reichle, and Flach are art historians and are not directly related to art academies, their outlook on the topic of art's flirtation with science and technology is characterized by the above-mentioned thesis that art here decidedly exerts epistemic functions. Especially Flach's and Reichle's contributions are engaged in the promotion rather than the mere description of the field of 'art and science'.

The question of 'who speaks' is also noteworthy for the evaluation of the multitude of publications from authors linked to art academies bringing with it the inevitable bias. Authors like Jill Scott and Stephen Wilson are both artists and professors in academia. In 2002 Wilson presented his *Information Arts. Intersections of Art, Science, and Technology* which has

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7 | www.zfl.gwz-berlin.de/forschung/projekte-bis-2007/wissenskuenste/ [In the following, the translation of foreign sources into English is always mine, unless otherwise indicated].

8 | Cf. e.g. Sabine Flach, "WissensBilder – Die Doppelhelix als Ikone der Gegenwart", in: Elke Bippus, Andrea Sick, eds., *Industrialisierung – Technologisierung von Kunst und Wissenschaft* (Bielefeld: transcript 2005), 64-82; ibid., "'It's not easy being green!'. Schnittpunkte von Kunst, Medientechnik und Naturwissenschaften am Beispiel der Transgenic Art", in: Martina Heßler ed., *Konstruierte Sichtbarkeiten. Wissenschafts- und Technikbilder seit der Frühen Neuzeit* (Munich: Fink 2006), 281-302; Flach, Sabine and Sigrid Weigel, eds., *WissensKünste. The knowledge of the arts and the art of knowledge* (Weimar: VDG Publ. 2011).

9 | This is reflected in the established media art centers Ars Electronica in Linz or the ZKM in Karlsruhe, in programs like the Artists-in-labs Program at Zurich's University of the Arts, or also in research projects like the above-mentioned *WissensKünste*.

been a first and seminal overview of the field.[10] Both this (and also his later contributions) and Scott's compilation *artists-in-labs. Processes of Inquiry* are unavoidably colored by their affiliation.[11]

Against the backdrop of the literature's general tendency, I want to take a somewhat ethnographic, rather disinterested, view, if at all possible. It is not my intention to discuss how convincing, or how good or bad the works of the so-called Japanese Device Art are, or how media art installations fascinatingly approach the nanosciences. I do not see any 'truth' revealed in the artworks of an untimely Heideggerian or Adornian tradition which, surprisingly, still lingers on. Rather, I attempt to take an "unfamiliar" look at a research field that I, a trained historian of mainstream contemporary art, have entered from its periphery.[12] Thus approaching media art and its interrelation with science and technology, I am conscious of the fact that ethnographies "do not prove anything", they do not offer "singly possible, authoritative descriptions".[13] It is not only the choice of exemplary case studies, but it is also my view upon them that is pre-conditioned by the meaning created from a subjective standpoint. The specificity here is the sociological stance by which I illuminate phenomena of media art and its combination with an extrapolation onto the discursive level. The choice not to analyze the artworks in-depth was a conscious one. As my interest is to explore players and networks in funding contexts on the one hand, and rhetorical linings and underlying beliefs of these media art fields on the other hand, my main concern throughout the study is the analysis of rhetorics, not a work-immanent interpretation. The presented artworks,

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10 | Stephen Wilson, *Information Arts. Intersections of Art, Science, and Technology* (Cambridge MA: MIT Press 2002).

11 | Jill Scott ed., *artists-in-labs. Processes of Inquiry* (Vienna: Springer 2006). The sequel of this first publication accompanying the program at Zurich's HdK (Jill Scott ed., *artists-in-labs. Networking in the Margins* (Vienna: Springer 2010)) was not taken into account before this study went to press.

12 | Cf. Klaus Amann, Stefan Hirschauer, "Die Befremdung der eigenen Kultur. Ein Programm", in: ibid. eds., *Die Befremdung der eigenen Kultur. Zur ethnographischen Herausforderung soziologischer Empirie* (Frankfurt a.M.: Suhrkamp 1997), 7-52, esp. p. 11.

13 | Ibid., p. 30. As a point of reference see Clifford Geertz, "Thick Description. Toward an Interpretive Theory of Culture", in: ibid., *The Interpretation of Cultures. Selected Essays* (New York: Basic Books 1973), 3-30.

namely works subsumed under the label of Device Art and Nano Art, would certainly deserve a study closely examining their inherent logic and function beyond the discourse I aim to dissect. It might well be that under close scrutiny from a work-immanent angle, several of the gadgets, installations, or related pieces would display characteristics dissimilar to the ones they assume in my study concerned with overall relationships. Next to my focus on broader (social and historiographical) contexts, there was a simple reason for abstaining from a detailed interpretation of the – most often – interactive artworks: their accessibility. Although my research is based on extensive travel activity, I have personally not been able to see many of the installations. While I have had the chance to take a look at most of the Japanese Device Art objects, the Nano Art works have been on display in places and at times that made it impossible for me to personally see and experience them.[14] This problem concerning art historical methodology in general is often ignored in contributions to the field of art (and architecture, for instance) and is central in that it unbalances once more the author's sovereignty of interpretation. My approach thus *can*not be concerned with the inner logic of the artworks and their development of *meaning*. In my study the artworks rather serve as objects in a social field of cultural production, in networks of agents,[15] and as part of a discourse in one specific niche of media art – one closely tied to science and technology.

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14 | With the exception of *200 nanowebbers* by Semiconductor I have not had the chance to experience either of the interactive installations by Victoria Vesna and James Gimzewski, Anne Niemetz and Andrew Pelling, Paul Thomas, or Christa Sommerer and Laurent Mignonneau. The documentation of the works in texts and images has thus served as the basis of my analysis. 'Nano Art' (and its orthographic variations NanoArt or nanoart) today is a label designating highly heterogeneous phenomena from pictorial achievements in the nanoscientific community, new-age-style manipulations of these research images, and finally media art installations. Only the latter will be discussed here. Most of the artists understandably resist any classification under such a label. I will use it here merely for reasons of practicality, without any intention of consolidating a new art historical term compartmentalizing artworks that might well be classified differently.

15 | My approach, however, does not expand into Bruno Latour's conception of human and non-human agents; cf. ibid., *We Have Never Been Modern* (Cambridge MA: Harvard University Press 1993); ibid., *Pandora's Hope. Essays*

I present one example of each sub-discourse: one of 'art and science' and one of 'art and technology'. My original wish to only focus on art and science cooperations has been thwarted and ultimately enriched by the striking absence of such projects in Japan. The answer to *why* this might be so constitutes the first chapter of my study concerned with art and its link to technological development in Japan. I thus discuss both fields – 'art and technology' and 'art and science' – their dissimilarities, but also the relationships between them.

These relationships and meanings become most relevant in the third chapter. I move from firm observational grounds and enter interpretative terrain that is much less solid. I give up the close-up observation of actors, institutions, and artworks, in order to set prevailing rhetorics into a historical perspective. The central concern of the last chapter is a scrutiny of the media art discourse with regard to two sides evaluating the cultural present: 1) utopias of progress which have accompanied all of modernity and 2) their antipode – cultural criticism or the German *Kulturkritik*. I understand this scrutiny, with Philipp Sarasin, as "the endeavor to analyze the formal conditions that control the production of meaning".[16] Today's media art production and its rhetorical context appear as yet another reaction to a present which is perceived as being rapidly changing by artists and theorists alike. This chapter follows an impetus preeminent in theorist Dieter Daniels' work. Daniels has repeatedly remarked upon the revival of "modernity's project" in media art.[17] For the discussion on art's relationship to technology and science with respect to theories of an accelerated present and a changed future, I lean on contributions by Georg Bollenbeck, and for a more philosophical level on Hans Ulricht Gumbrecht, Jean-François Lyotard and Bruno Latour.[18] Rhetorics of progress and

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on the Reality of Science Studies (Cambridge MA: Harvard University Press 1999).

16 | Philipp Sarasin, *Geschichtswissenschaft und Diskursanalyse* (Frankfurt a.M.: Suhrkamp 2003), p. 33.

17 | See specifically Dieter Daniels, *Kunst als Sendung. Von der Telegrafie zum Internet* (Munich: C.H. Beck 2002).

18 | Georg Bollenbeck, *Eine Geschichte der Kulturkritik. Von Rousseau bis Günther Anders* (Munich: C. H. Beck 2007); esp. Hans Ulrich Gumbrecht, "Stagnation", *Merkur* 62 (Sept/Oct 2008), No. 9/10, 876-885 (Gumbrecht's ideas in turn are informed by Reinhardt Koselleck's seminal work; e.g. ibid.,

field-immanent rhetorics of art's critical function in our techno-society (as upheld by Reichle, Flach, or philosopher Alfred Nordmann) are then set into relation with Lyotard's reflection upon what he calls *paralogie* – a critical counterweight to the restrictive techno-societal thought pattern.

In all this, I do not pertain to any school of thought or coherently stick to one theory as *the* red line running through the entire study. In the first two chapters – the case studies on which I shall extrapolate later on – I follow an art sociological methodology interested in revealing positions and connections of players in tightly knit networks of the media art field. Leaving this micro view and opening my approach toward the broader perspective and context, I do consider Lyotard's and Latour's ideas on history and periodization enormously valuable without, however, seeing the possibility to employ either one wholly and uncritically. My approach, which one might duly label positivistic in the first two chapters, is starkly in contrast to the third chapter on belief in the future and in technology to be found in the 'art and science' scene. Evaluations and conclusions of this last part of the dissertation stand on much less firm ground as they follow the reflection of highly complex interrelations. Here, along with eminent scholars on the problem of thinking and writing 'history', the elaboration of the central question – as to which position phenomena like 'art & science' and 'art & technology' occupy not only in art's, but also our society's general quest – must entail some uncertainty and inconclusiveness.

Media art does not come about without any presuppositions. It is bound to funding contexts and institutional affiliation. This dependence on the funding context is in itself nothing new: no one ever claimed that art – any art – was not dependent on patrons, networks, the market. This said, my aim is to examine more closely a) a national funding context and its relevance to media art in Japan and b) the international appeal of labeling something 'nano' in media art.

I will show how media artists position themselves accordingly. The so-called Device Art in Japan – gadget-like and potentially commercial art objects – will be exemplary of how significant economic factors are in the support and promotion of art and technological development. In international

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Vergangene Zukunft. Zur Semantik geschichtlicher Zeiten [Frankfurt a.M.: Suhrkamp 1989]); Jean-François Lyotard, *The Postmodern Condition. A Report on Knowledge* (Manchester: Manchester University Press 2004); esp. Latour 1993.

'Nano Art' – artworks dealing with nanotechnology – it will become evident which role academia and public funding through science museums play in fostering the link between 'art and science'. The rhetorics employed by artists and promoters of these art forms are adapted to the respective funding situation in that they address key terms like industrializability (by which I mean the potentiality of being commercialized) and 'Japaneseness' in the first case, or a booming technoscience of our 'knowledge and information society' in the case of Nano Art.

In both cases the concept of popularization plays a crucial role. It concerns communicational processes between works of media art and their audience. While Device Art in Japan relates to the core of a society often described as being gadget-infatuated, the buzzword 'nano' in an art context immediately brings up notions of the public understanding of science and its popularization in galleries and science museums.

Against the backdrop of cultural criticism set at around the 1900's which addresses the living conditions under the change painfully experienced in the form of industrialization, and in view of varying conceptions of a hazy 'future' succeeding our present, I will show how media art around the year 2000 is still affected by interrelated tropes dating back to 'modernity': science and its language appealing to future and progress, the "disenchantment of the world" precisely through science and processes of rationalization, and the ensuing *Kulturkritik* of technological advancements. Can an art form of today dealing with science and technology still be indebted to a regime of unbroken hope for a technologized future or is there a substantial critique incorporated in these artworks as suggested by many media art theorists for the 'art and science' field?

Dissecting one example of successful media art in Japan and one of interactive installations in something often summarized as 'the West' – referring to Europe, the United States, and Australia – I set up a dichotomy; a division which methodologically immediately brings about difficulties, if set into stark contrast. I elaborate on interview material of those conducted in Japan and, mostly, in the United States. For the Japanese case surfaces the cliché of a neocolonialist view musing upon questions of 'Japonization'. In the second case, the problem is 'reduced' to exerting the author's sovereignty of interpretation over collected research material. The two problems have to stay unsolved. I try, however, to avoid an unjust essentialization of Japan and 'the West' by aiming not at a comparison of divergent samples, but at a presentation of two equal positions. Although

questions of 'Japaneseness' will be brought up in the first chapter, the two case studies do not serve as examples of different *cultural* approaches of science and technology in media art. Rather, the analysis will stay true to the premise of investigating actors in a field of cultural production, by which the two fields will, after all, not appear essentially different.

Operating with categorizations such as 'art and science' and 'art and technology' makes it easier to refer to the two phenomena under scrutiny. Of course, the works grouped under these categories are not as homogeneous as claimed, the categories themselves being rather indistinct. Yet the simplification allows better understanding of structurally differing phenomena: of media art and its interrelation with technological development or scientific vogue terms. While the compounds in other contexts, just like 'art & research', may comprise completely diverging artistic approaches, I use them here in order to highlight works of *media art*, not of traditional media like sculpture and painting or traditional installations like, for example, those of Suzanne Anker or Mark Dion. I am thus speaking about segments of media art. I do not claim to speak about media art *in general*, nor do I want to stress that there are not, also in the two fields under scrutiny, artistic positions which counter the conclusions drawn in my study. However, in the third chapter I do dare an assessment of what the current 'art and science' boom means for prevailing thought patterns and outlooks of our society.

Especially in the last chapter, which offers a historical perspective on the art in focus, terms historicizing the past century are helpful for an evaluation of the present. I use the terms 'modernity' and 'postmodernity' being conscious of the fact that they do not come without the cost of ambiguity. In order not to make the matter more problematic than necessary, I employ 'modernity' for the epoch of about the second half of the 19th century up until World War II. My understanding of 'postmodernity' then follows the cited sources.[19] It is used basically as the self-description of the decades from the 1970s until today.[20] Already in

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19 | Especially important will become Jean-François Lyotard's conception of the term with respect to an evaluation of what already in 1979 he called 'postmodern knowledge'.

20 | A differentiation in postmodernity, neo-modernity, and Second Modernity, as proposes Peter Weibel in 1996 (cf. footnote 24), in my opinion does not help clarify the debate for my purposes.

the 1990s, Heinrich Klotz has introduced the term 'Second Modernity': a late modernity now historicizing 'post-modernity' as a problematic and excessively charged term.[21] Such linguistic shifts are an illustration of the perpetual trial to describe temporality, historical change, and art's role in it. Klotz develops his claim that the "media art of the Second Modernity opposes the [ideological] position of Classical Modernity" while he takes a look at a selection mainly of video art.[22] The selection of art presented in my dissertation does not support Klotz' thesis. After all, this leads back to the problem of representativity of selective research,[23] a problem which can only be countered, not neutralized, by conscientious evaluation. The third chapter with its glances on modernity and 'postmodern' media art will then tackle Peter Weibel's neat classification: "Whenever an art appears that deals with the dislimitation of art and life and their fusion, it perpetuates the project of modernity.[...] But art can also repudiate this project; then it will partially belong to postmodernity."[24]

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21 | Cf. Heinrich Klotz ed., *Die Zweite Moderne. Eine Diagnose der Kunst der Gegenwart* (Munich: C.H. Beck 1996), esp. p. 9.

22 | Ibid., p. 22.

23 | Cf. Amann/Hirschauer 1997, p. 15.

24 | Peter Weibel, "Probleme der Moderne – Für eine Zweite Moderne", in: Klotz 1996, 23-41, p. 26.