

(Un)common Ground

(UN)COMMON GROUND

– Creative Encounters across Sectors and Disciplines

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Preface

By Cathy Brickwood and Willem-Jan Renger

This book is the result of a partnership between the *Utrecht School of the Arts* (HKU) and *Virtueel Platform*, with the support of Arts Council England. Through its faculty of Art, Media and Technology, HKU has developed a strong reputation for building relationships with industry. *Virtueel Platform* is an expertise centre in the field of creative new media, which supports knowledge exchange between new media researchers and producers in the non-profit and commercial sector in the Netherlands. The ‘Uncommon Ground’ project began as a small, experimental research project to gain a deeper understanding of the dynamics of successful *cross sector* collaboration. The explosive growth, not just in interdisciplinary practice but in creative collaboration across whole *sectors* including business, art, design, the public sector and academia, requires collaborative practice to become less ad hoc and more strategically informed. A second related aim was to identify methods of research (for example ‘design, qualitative or grounded research’) which might be the most useful to those working within creative sectors and to determine how these might productively interface to more classical academic methodologies. Finally we were keen that any insights and conclusions could be applied in curriculum development and even be useful to those developing educational policy for the creative sector.

After a period of exploration, the group identified a number of ideas and case studies rich enough to

warrant more detailed investigation. In September 2006, as part of Amsterdam’s Cross Media Week, we launched Uncommon Ground as a large-scale expert meeting. In this meeting a broad spectrum of case studies was presented and explored in detail by a group of invited experts. The papers, discussions, and related essays from this first Uncommon Ground meeting form the basis of this book.

Our approach reflects the radical pragmatism of the seminar, so that insights and theoretical categories emerge from detailed discussion and comparison of each of the case studies presented. Any theoretical propositions (including the idea of uncommon ground) were open to revision in the process of examining *what actually happens*.

Our process was one of dramatising differences, focusing on the problems and the loose ends rather than smoothing out or disguising problems. Time and again insights arose through exploring the different ways in which ‘loose ends’ might be tied, even across different projects.

The result is a book with a range of practical and inspiring insights into the complex realities and rewards of cross sector collaboration. The book’s pragmatic approach makes it of value to managers, educators and art and design professionals.

David García is a Professor of Design for Digital Cultures at the University of Portsmouth and the Utrecht School of the Arts (HKU) in the Netherlands. His work combines making personal installations, video tapes and TV programmes, together with extensively published theoretical writing on critical media and internet culture. This work is combined with organising large-scale public events in the form of conferences and exhibitions. He was initiator of The Next 5 Minutes (1994–2003) a series of international conferences and exhibitions on electronic communications and new social movements. He is currently curating Faith in Exposure, a major international exhibition for the Netherlands Media Art Institute scheduled for (2007). He will launch Tactical Media Files, a living archive for Tactical Media, in October 2007.
<http://www.next5minutes.org>, <http://emma.hku.nl/index.php?pageID=1056subID=2>

Introduction

By David García

The ubiquitous concept of the *interdisciplinary* is too narrow a term to capture the intensity and plurality of today's networks of collaboration. Collaborative practice not only extends its reach across all disciplines but across whole sectors and levels of society. There is a gathering recognition that we are witnessing the rise of an era of multi-dimensional collaboration which is not only leading to significant innovation and commercial advantage but also embodies, in and of itself, a powerful transformation in our ways of producing, consuming and relating to one another and to our world.

The emphasis on collaboration for competitive advantage is coming to be matched by the realisation of an equally urgent need for a deeper and more responsible understanding of what is at stake when we work together across disciplinary boundaries. The desire for deeper understanding is aligned to the fact that the era of networks not only makes us more *interconnected* but also heightens the awareness of

our *interdependence*. This in turn contributes to the multiple experimental forms we are witnessing as the various actors attempt to navigate the opportunities and balance the contradictory forces and values at work.

Sometimes these experiments have been designed, planned and orchestrated but more often they have evolved through countless improvisations. This is the complex ecology we have begun to map in this book.

Origins

Uncommon Ground was the title of an expert meeting that took place in Amsterdam on 27 September 2006. This meeting was preceded by a series of informal discussions between a small group of researchers, artists and designers, all of whom work in universities and also have considerable experience managing projects involving partnerships in the wider business or professional world. The outcomes of the expert meeting were deemed rich enough to warrant the publication of a book. The book would not only report

the proceedings of a one-off event, but open up the topic of Uncommon Ground to input from others.

In one of our early meetings Geke van Dijk (who has been very successful in business in the Netherlands but stepped out to do a PhD at the Open University in the UK) put our core issues very succinctly: 'Having "been" in business myself, I clearly remember that it was indeed hard to keep track of what knowledge would be available from universities'. She went on to describe how, from the outside looking in, universities seemed to exist in a different world, with different routines, different formats, and most importantly a different pace. Even though she knew people working within Dutch universities, attempting to keep up with knowledge from these institutions was hard. 'Reading academic papers is not the same as professional magazines, and academic conferences are very different from business seminars'. Now, working herself in a university, Van Dijk sees things from the opposite side of the gap. 'A lot of academics have no clue about how things are done in industry. Often they would really like to have more contact, but they seem to speak a different language and to move at a different speed.'

At this point we concluded that for our communities to share more knowledge all the parties needed to invest far more in identifying or creating *common ground*, but with such profound differences in culture it was also clear that this would never be simple or easy.

Common to Uncommon

Once our investigations were underway, however, the case studies we began to explore suggested that successful collaborations were frequently based on the very opposite of a search for common ground. Rather, many of the most creative encounters were in fact founded on a willingness, even a desire, to occupy *uncommon ground*. The generally unexpressed need was for a kind of *creative estrangement* from the assumptions that underpinned the usual networks and rituals. A key value of cross sector collaborative practice was the kind of conceptual disorientation that allows for the unexpected, for innovation.

At the more radical and experimental end of our continuum of case studies we found a growing number of the collaborative projects that were the apotheosis of the organised optimism of policy makers and management culture, where the drive is to create consensus at all cost. In the sub-cultures and the creative fringes, which are frequently important engines of wider innovation, we found collaborative projects founded on drawing creative energy from actually 'dramatising' the differences between participants, allowing rather than glossing the powerful antagonisms that are always attendant on genuine pluralism. This the zone we could call 'a creative *Un-commons*'.

A history of managing these cultures of 'incommensurability' can be found in the Caroline Nevejan's essay for this book, 'Orchestrating Uncommon Ground'. During the 1990s Nevejan organised a series of landmark events, convening many of the key discussions about the role of technology in modern popular democracies. Nevejan launched the case studies sited in her essay, from Amsterdam's famous music venue Paradiso, which she deployed as a platform for programming serious public debate as popular culture. In her essay she introduces us to a tool box of concepts, techniques and terms to help participants and organisers of what she has called 'networked events', to 'invent things that could not be foreseen'.

Building a Network

Once we had identified 'uncommon ground' as a theme we moved into a more formal phase of investigation, by convening an expert meeting with key players from a number of significant case studies. Though small in number the examples we chose represent a significant spectrum of cross-sector collaboration, from open-ended experimentation to the sharply focused assignments with clearly defined expectations.

We asked those who had managed the projects we selected to make presentations to a group of specially invited experts made up of researchers, policy makers and a significant number of actual practitioners.

Our principle in this initial meeting has been to emphasize candid descriptions of *what actually*

happens, rather than parade success stories and good intentions, we chose presenters (and writers for this book) who would have the confidence to avoid appearing to have all the answers. Instead we asked them to bring us their questions and to avoid tying up all their loose ends in order to make seamless presentations. This has allowed loose ends to be tied in different ways maybe even across different projects, in short we asked them to create a space for riskier kinds of narratives to emerge.

During our meeting each case study was unpacked from the different points of view of the gathered experts. The discussions were recorded and we fed the transcriptions back to our growing research network. It is these discussions and subsequent reflections that give rise to a provisional mapping of themes and meta-themes.

An example of this process is the essay for this book ‘The Emergence of Creative Spaces in a Knowledge Economy’ in which Tim Putnam grounds our investigations in a broader historical context as well as in the ‘nuts and bolts’ of the material conditions required for uncommon ground to emerge in a complex industrialised culture.

Putnam’s essay ranges across two centuries of ‘key formative moments’ in the emergence of the new cultures of science based industries. Putnam’s examples demonstrate how often the ‘prime site for the emergence of uncommon ground is crisis; crisis resulting from the unintended consequences of bringing new knowledges and products based on them, together.’

Themes and categories

Taken as a whole, the case studies (and we suggest any substantial multi-disciplinary or cross sector collaboration) occupy a number of basic categories but never just one and frequently more.

– *Pragmatism: focused collaboration directed towards concrete outcomes* is the obvious starting point. An exemplary case study in this category can be found in Sam Bucolo’s piece for this book. Bucolo is director of research and development of Australasian Cooperative Research Centre for Interaction Design

(ACID), which focuses on the power of interaction design as a catalyst for collaboration by shaping the direction of industry developments. ACID has brokered many complex multi-disciplinary projects. In his essay Bucolo describes in detail how a human-centred design process helped unify a multi-disciplinary research team to develop a platform in which electronic interactive games are used to help children undergoing painful medical procedures.

Clearly nothing could be less classically ‘academic’ or more urgently practical than this assignment, and yet ACID (a private company with five universities and a number of private sector organizations as shareholders) has a growing emphasis on persuading industry how important it is to understand the values and workings of academia. ACID’s way of addressing this issue is typically both imaginative and pragmatic. They actually build a reflective stage into short-term contracts, which require the industry partner to co-write an academic paper. According to Bucolo, this has surprised initially reluctant industry partners by being a valuable tool. ‘Often they come back to us and say thank you, as they generally do not have that opportunity. But if we build it into a contract, it gives them that time to sit back and think hey that is what we actually did.’

The creative role that the imaginative drafting of contracts can play in cross sector collaboration not as an enforcement tool but as a ‘boundary object’ is one of the surprising elements that we find recurring across a range of categories.

– *Academic and educational collaborations and experiments*: these may function either on the institutional level or as experimental methods of research and pedagogy. An example of institutional innovation is Stanford University’s D (for ‘design’) School, which sits horizontally across all the different disciplines and works collaboratively with different departments to develop the spaces between fields. In terms of pedagogical practice outside of the traditional educational institution we find an imaginative recuperation of a traditional form of art education (from the era long before schools of art and design) has been developed by Amsterdam’s Media Guild. The Guild provides a transitional environment between leaving college and entering into the market place.

Selection is based on a project proposal, which the Media Guild believes has a good chance of real world viability. Moreover as the term ‘guild’ implies, they have also recuperated the ancient arts and crafts model of master and apprentice. A range of in-house experts assists graduates in taking projects from the research phase to a point of sustainability through a process of both support and mentoring. Another example of institutional innovation can be found at The Utrecht School of the Arts, which has made a significant investment in creating a special department for identifying relevant industrial partners, then brokering and nurturing the complex relationships between students, industrial partners and expert teachers.

In the essay ‘Managing Creative Encounters’ we get a glimpse into the richly textured exchanges between very different cultures as a group of art students work closely with Philips Research Labs.

– *Inclusive design* is an emerging theme in which users or consumers are structurally integrated into the design process. The approach forms the foundation of the Helen Hamlyn Center, based at the Royal College of Art in London, an entirely postgraduate college of art and design. The centre aims to develop knowledge of inclusive design by interacting with the RCA design community and with business, academia and other opinion formers. The complex issues it faces are described by Yanki Lee in her essay ‘Innovating Through Inclusive Design’, in which she examines how this approach is integrated into both their design practice as well as the educational model they are advancing.

Geke van Dijk’s essay for this volume, also emphasises ‘consumer-driven innovation’, asserting that ‘with self-service technologies the consumers are ultimately in control... with “lead users” innovating and customising products in ways that exceed the expectation of the in-house developers.’ Among the many important issues van Dijk touches upon, are a number of new ‘design research’ methods, such as ‘probe studies’ and ‘design documentaries’ geared to helping designers develop the new levels of empathy, the feeling of *being there* with consumers. ‘Not simply sending a researcher who files a report for the designers’.

A fascinating example of what could be called, *designed inclusivity for inclusive design*, is DOTT 2007, a network of projects culminating in a festival at Gateshead in Newcastle. The event’s programme director, John Thackara, utilizes many of the basic principles of inclusive design but in the context of the public sphere rather than the market place. DOTT 2007 sets out to improve six aspects of daily life in practical ways, through designers working closely with grass roots community projects across the North East of England, as Thackara put it: ‘this is not so much creative industries as creative communities’.

– *Lab culture*: Another volume could be devoted to the host of media and innovation labs (we also include experimental events, conferences and festivals) in which a variety of methods and techniques are employed to jump start innovation and transformations by triggering unforeseen connections. This is one of the most volatile of our categories as there is evidence that large scale strategic investment in media labs with high density infrastructure is giving way to faster moving ‘tactical media’ labs with an emphasis on quick turn over and rapid prototyping. As Matt Locke of BBC innovation labs put it: ‘Good innovation theory is all about having lots of projects developing over time eventually coming down to driving just a few products. You have loads of ideas and very quickly move on. It’s about really rapidly iteratively cycling through processes rather than necessarily limiting outputs.’

Another dimension in this category is the growth of Lab culture as a service. In Simon Robertshaw’s contribution to this volume he describes how he and his team have created a *Lab culture service* at Liverpool John Moores University.

Robertshaw and his team have developed their own highly elaborated innovation lab model, dubbed The Automatic, which includes a number of powerful applications capable of drawing out a greater range of participation from those attending their labs. Just one example one of these (proprietary) applications described in Robertshaw’s essay, is the ‘distributor’, an alternative to the standard white board or flip chart. The ‘distributor’ is a real-time electronic writing tool enabling all those involved in the lab to participate more fully, simultaneously pooling their ideas

and doing so anonymously. This short-circuits what Robertshaw calls the ‘power of the pen’, which usually prevails in white board sessions. This apparently simple device allows everyone to contribute and pool the knowledge.

The developers who combine lab culture with education are some of the most reflective, and sharply aware practitioners. In his essay Garrick Jones, who through his company LUDIC works with both the London School of Economics and the UK’s prestigious Royal College of Art, has written on how he has developed media labs in which ‘the design process is used as a means of enabling a constructivist and generative approach to collaborative conceptual work’. At the Uncommon Ground meeting in Amsterdam Garrick Jones’s presentation was one of the most refreshing in its frankness. His emphasis lay on the ever-present component of human fallibility in any design process. The law of unintended consequences has lead him to follow Samuel Becket’s dictum ‘Try again, fail again, fail better.’ Drawing on an extraordinarily varied range of experiences of educational projects linking academia and industry he offers us a rich and playful taxonomy of collaborative possibilities, ‘a cloud of multiple forms and innovative opportunities for collaboration. This is an open approach, based on biological principles of diversity and selection, which acknowledges that some forms will be more successful than others.’

– *Artist’s partnerships and placements* in a variety of forms feature extensively in this volume. One of the most impressive examples has been based on a long-term relationship between Hewlett-Packard, whose UK operation is based in Bristol in the UK, and one of the UK’s premier media centres, Watershed, also based in Bristol.

This sense of place, of commitment to a locale, has been crucial to the unusually enduring nature of the relationship, which over a number of years has built up an impressive portfolio of opportunities. In these projects artists have been able to combine the expertise and resources of Hewlett-Packard with social interface and media savvy of Watershed. In the era of networks (despite the revolution in locative media) actual location in the human sense of commu-

nity, is often neglected. But this is one case in which we see how long-term commitment to a geographical location and its communities can be an important component in sustaining partnerships in the longer term.

One of the most comprehensive and far-reaching programme of artist placements has been realised by the Arts Council England, in its Interact Programme, where twenty-eight artists placements have been arranged within innovative research and industrial contexts.

Anthropologist Samuelle Carlson was commissioned by Arts Council England to write a detailed report on this programme. For this book Carlson has written an essay, which focuses on five case studies taken from the report and draws on many of the key issues it raises. Throughout her essay Carlson is continuously throwing familiar assumptions into question, for instance she questions theories that assume a ‘natural’ antagonism between the artistic and industrial fields. She emphasizes how much existing common ground there was between the partners, particularly ‘a common perception of one’s activity as one of research based on mixing and matching and constant unsettlement’.

Some of the real differences arose around different ‘models of ownership’. The organisers put a great deal of effort and thought in to how and when to be explicit about interests and ownership. Contracts do not often feature prominently in what creative people care about, but they have played a surprisingly important part in many of the cases in this book. Bronac Ferran, who initiated the Interact Programme, notes that contracts can be useful means of navigating uncommon ground: ‘They relieve anxieties, especially when one of the partners involved are companies, they also open more doors for artists to resources and give a sense to all participants that they can ‘get on with things’. But on the other hand their emphasis on ‘explicit outcomes can more specifically promote ‘the commodification of everything’.

Following directly on from Carlson’s essay, many of the key issues around mapping ownership and the use of contracts as ‘boundary objects’ are explored

in greater depth in ‘Models of Ownership in Challenges of Contemporary Creativity’, in which Ferran edits extracts from the 2006 Intellectual Property Summit: Codes and Creativity. In these extracts we hear from a small group of specialists working in anthropology, art, design, law, science and technology. In their attempts to ‘map ownership over the world of contemporary creativity’ they touch on many of the complexities and antagonisms that constitute the reality of working on uncommon ground.

Some voices in this book question the very possibility of artists working with industry without losing the core value of fine art; a claim to autonomy. In her essay ‘A Pair of Doxa and a Paradox’ Sher Doruff, incisively but with great subtlety challenges many of the values behind this book, she notes: ‘The playfulness of art and design research/creation has much to offer in the open discourse and shared praxis between rigorous scientific methodologies and the crapshoot of entrepreneurialism. But that same playfulness, the dynamic relations that emerge through interplay, have already been subsumed by the system and are driving it.’ Doruff goes on to quote radical media theorist McKenzie Wark: ‘Play was once the battering ram to break down the Chinese walls of alienated work, of divided labor. Only look at what has become of play. Play is no longer a counter to work. Play becomes work; work becomes play.’

– *Cultural brokers*: This is the one category that spans all the case studies. All projects depend on *cultural brokers, consultants, connectors and ‘translators’* who drive and facilitate creative encounters connecting all domains and disciplines. Ronald Burt, in his book, *Structural Holes, The Social Structure Theory of Competition*, has assembled a significant body of evidence demonstrating the importance of ‘connectors’ or ‘brokers’ in creating competitive advantage by identifying and then connecting the ‘structural hole’ or gaps between social clusters with complementary resources or information. There are very few essays or reports in this book that do not highlight and celebrate the role of the connector. But there are risks: Carlson’s report on the Interact Programme shows how a number of

the featured artists have begun to extend their reach beyond the conventions of their specialist disciplines, acting as connectors to other sectors. One might question how far they might acquire this flexibility without running the risk of becoming jacks (or jills) of all trades.

Geke van Dijk’s essay rebalances the emphasis on the single cultural broker towards the need for teams of T-shaped people: ‘T-shaped people can be characterised by having their own in-depth expertise in a specific discipline and also a broad general understanding of various other disciplines. This helps them to communicate and successfully collaborate with other experts.’

Stressing the importance of T-shaped teams could also have the effect of distributing the leadership role to all the members of a team. T-shaped teams have the potential to move closer to what Gerard Fairtlough calls a ‘*heterarchy*’, which he describes as ‘multiple rule’ a balance of powers ‘with responsible autonomy a group decides what to do, but is responsible for the outcome’.

Meta-themes

Operating across these categories we have identified three larger, connecting meta-themes; a) *forms* b) *objectives* c) *phases of development*. Each of our examples co-ordinates, with different weights and intensities, in relation to these three meta-themes. But for clarity’s sake we lay them out here in sequence.

To begin with there are the *forms or locations of uncommon ground*. As Garrick Jones puts it in his essay: ‘Forms of social organisation are a useful way of thinking as they help us to distinguish ways of organising, deploying technology or providing opportunities for people to meet and exchange – over time’.

The main general difference between forms lies, on the one hand between projects which emphasize an extension of multidisciplinary co-operation among professionals, of the kind that arise in lab culture and experimental festivals, and on the other hand the more pragmatic forms of co-operation between academics, professionals and commercial corporations, which is the current focus of the UK paradigm.

These forms break down into different types according to who is initiating and controlling the relationship – if it's 'problem solving' to a brief that's one thing but if it's concept generating it becomes another.

New forms will arise as boundaries shift; boundaries of knowledge, boundaries of expertise, of experience, of ownership and of power. The awareness of the role of boundaries in the articulation of forms has resulted in much discussion of what are known as *boundary objects*. But boundaries (a spatial metaphor) is only one way of thinking there are others. Charles Leadbeater has used the metaphor of the beach acting both as boundary and as third space of social freedom and experimentation between the private and the public spheres.

In contrast Ann Galloway, in an important essay for this book, uses the connected metaphors of *seams and scars* to look at 'things joined together and things cut apart. They mark the places where different subjects and objects were separated and connected.' Galloway goes on to ask: 'What if messiness, disjuncture or tension were not considered enemies to collaboration? What if these seams (or scars) were things we did not try to hide, avoid or overcome?'

Galloway's essay highlights an important fault line running throughout the book. It can be seen most clearly in the different attitudes to the notion of 'seamlessness'. What are sometimes called 'blended media'; a seamless integration across products and services. It is encapsulated in the belief that 'most interesting and innovative concepts these days no longer exist as isolated products, devices or websites. They rather exist as a system, or network, of both tangible and intangible elements that together make up the service consumers use and experience.'

From this perspective the combination of tangible and intangible elements must *flow*. Products that result from service design must 'seamlessly work together and allow consumers maximum flexibility to make their own decisions' (Van Dijk this volume).

On the other side of this fault-line are those like Rob van Kranenburg and Matt Ratto who argue in their essay for this book, 'Bricolabs: a Network for Generic

Infrastructures', that seamlessness has its down sides. Kranenburg and Ratto suggest that the emphasis on seamlessness gives rise to inherently 'closed' systems, the iPod, iTunes system being a case in point. They argue that 'the networks themselves, through confluences of social, technical, and legal regimes, can result in decreasing, rather than increasing access to cultural capital'. They point out that for Steve Jobs 'it is easy to ask for the removal of restrictions on content distribution when you control the network itself'.

In their essay on the Bricolabs, project, 'rather than attempt to "open" closed infrastructures and pick apart the seams of seamlessness,' they focus on articulating an alternative infrastructure: 'Our focus is on already existent groups of *bricoleurs*, public, private, and community-based creators focused on reworking, reusing, and repurposing the digital environment'.

In this and other examples of co-design we see boundary negotiations according to different and changing *objectives* and it is this that leads us to the second meta-theme: motives/objectives.

Motives, objectives and desires; the motives for taking a step into uncommon ground (which may be more or less mutual) are rich and various and we examine a continuum of possibilities in this book, from problem solving and validation at one extreme, to new concept development. And on to serendipitous experimentation with possibilities, which might or might not generate anything in particular, such as we find both the art-industry collaborations as well as in some of the riskier versions of lab culture. One of the characteristics of this approach is its tendency to problematise, de-construct, or unsettle. In place of bridging and blending, this approach emphasizes 'juxtaposition'. The process of dramatizing rather than glossing differences is a method based on an understanding of innovation as occurring *between elements*: It is as though these elements whether people, words, images or actions, set up between them a 'force field which can capture a more intense energy'. These projects are not trying to bridge uncommon ground but cultivate and dwell in uncommonness.

The final meta-theme: *Phases of development / evolution of relationships*

Our range of case studies shows how interaction in certain *forms* and around certain *objectives* can connect us across uncommon ground in ways that are more or less contingent or enduring. Studies which focus on what happens across uncommon ground in between specific collaborations, for example in nurturing clients, consumers, audiences, sponsors etc. This brings us back to the question of who is *bridging* uncommon ground and who is collaborating in a much looser way because they realise the need to maintain the uncommonness, perhaps in an altered form.

In contrast to observations about *forms* which are often made in terms of spatial metaphors like frontiers and boundary, the different phases of development are marked by critical *moments*, moments of recognition moments of alignment, moments of estrangement and moments of re-invention.

A number of these moments were discussed at length, for example the moments of evaluation gave rise to the observation that the question of who does the evaluating is a critical for determining who exercises power and how. It is a useful to think, in any given situation, how the *moment of evaluation* might be differently organised and shared.

A surprising amount of attention was given to the *moment of disengagement*. In contrast to the emphasis on orchestrating lines of loyalty, there was a feeling that the overused word 'community' failed to capture the necessarily provisional nature of relationships for those working with multiple, often, overlapping networks. Our networks generate a multiplication of intense but also loose ties in which disengagement is a perpetual and indeed an essential possibility. Collaborative networks have been likened to 'clouds of social relationships in which disengagement is pushed to the limit'. Respecting the looseness of these loose ties, means managing these moments of disengagement elegantly so that re-connection remains a perpetual possibility.

Un-concluded

Our exercise in mapping the worlds of multi-dimensional collaboration has just begun.

But behind the concepts, categories and buzzwords is the growth of a sensibility made up of more highly textured and subtle modalities of communication, which is harder to define, let alone codify.

This change in the 'quality' of discourse was encapsulated in a presentation by Danny Butt, an Australian writer and consultant, in a presentation he made at the MyCreativity convention (Amsterdam November 2006). He described how he saw his work as consultant as deliberately *not* 'about learning to read a situation in order to make a recommendation which has an impact (standard consulting technique: I propose a solution which fits your situation). It is about trying to enter the fabric of a context and make a contribution, which will be seen by that context as an impetus for change. Spivak calls this the "un-coercive rearrangement of desire". It's a very tough thing to do, an impossibility. But an urgent impossibility that is the hallmark of the consultant's work, we constantly fight our desire for control.'

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MyCreativity: Convention on International Creative Industries Research, November 2006, organised by Institute of Network Cultures, HvA Interactive Media, and Centre for Media Research, University of Ulster. www.networkcultures.org/mycreativity/



Workshop

Garrick Jones is an academic, businessman and musician based in London. As a Senior Research Fellow (Social Psychology) at the London School of Economics and Political Science (LSE), a Senior Lecturer of Industrial Design & Engineering (IDE) at the Royal College of Art & Design (RCA) and a partner of the Ludic Group, a Strategic Business Design group, he is actively involved in negotiating the social spaces between the commercial and academic worlds. He has worked with the LSE on 'Box', a specialised facility for knowledge exchange between academia and industry. His career has included Director of the Innovation Lab, Innovate:UK and Director of Accelerated Solutions Environments (ASEs) for Ernst & Young. He advises many of the world's most well known organisations and is particularly experienced in developing innovation strategies using collaborative learning and design methods. He has worked with teams to launch collaborative environments in Europe, Africa, Australia, the United States and Asia. Garrick has worked on cultural change in the South African context, is a member UNESCO's IFIP Taskforce on decision-making and was recently the recipient of the first fellowship in the future of Design in Business awarded by The Royal Commission for the Exhibition of 1851. www.ludicgroup.com

Experiences of Academic/Business Interdisciplinary Work – Two Cases and a Framework

By Garrick Jones

Working in the space between academia, commerce and industry is always and ever challenging. One is straddling two extremely different domains. On one project it's a question of process, or timeframes, and on another it will be language, or hourly rate, or rigour, or research methodology or even fundamental values. Despite the difficulties I continue to believe that it is worthwhile to figure out how these different domains are best able to interact at the margins, for mutual benefit, and the best way I know of doing that, is by getting on and doing it. In this endeavour I follow Samuel Beckett's dictum *'Try again, fail again, fail better.'*

I am now, in 2007, a fellow at the London School of Economics and Political Science (LSE) in the Institute of Social Psychology. I am also a Senior Lecturer at the Royal College of Art and Design (RCA) in Industrial Design and Engineering (IDE). I view my work in Social Psychology as providing me with tools

for contextual understanding, and my design work with IDE as providing generative tools for moving from initial feelings and ideas to getting things done. Although I have spent five years working with universities, the last fifteen years have been spent in the commercial sector, where I was fortunate to work with the boards of many of the world's most recognised organisations. I am most well known for my work with another three letter acronym (TLA) the Accelerated Solutions Environment (ASE) – a lab concept, married with a decision-support environment, synthesised with systems thinking, learning organisation frameworks and creative processes – that was developed to enable very large groups to tackle highly complex problem solving and programme management.

It was then that I began working with commissioned research, to contextualise the decision-making. The requirement for 'knowledge objects' and subject



Buscourse China

matter experts in our processes evolved very quickly into relationships with universities and research facilities. It was while running an Innovation Lab for a major consultancy that we began to significantly explore the design process as a means of enabling a constructivist and generative approach to collaborative conceptual work.

In the UK two reports were published that provided the impetus for promoting the links between academia, commerce and industry. The Lambert Review of Business-University Collaboration was published in December 2003 and the Cox Review of Creativity in Business in December 2005. Both promoted ideas that successful collaborations were primarily the result of successful social interaction between people. The Cox Review in particular defined 'design' or more specifically 'design process' as the specific link between creativity and innovation.

'Creativity' is the generation of new ideas – either new ways of looking at existing problems, or of seeing new opportunities, perhaps by exploiting emerging technologies or changes in markets.

'Innovation' is the successful exploitation of new ideas. It is the process that carries them through to new products, new services, new ways of running the business or even new ways of doing business.

'Design' is what links creativity and innovation. It shapes ideas to become practical and attractive propositions for users or customers. Design may be described as creativity deployed to a specific end.

Cox Review of Creativity in Business: building on the UK's strengths, December 2005

The Lambert Review sought to illustrate the changes in business and university collaboration, highlighting new forms of research and development and identifying role models of successful collaboration. It was the concepts of knowledge exchange and

knowledge transfer that attracted me, and specifically the forms that best promote that exchange.

'The best form of knowledge transfer comes when a talented researcher moves out of the university and into business, or vice versa. The most exciting collaborations arise as a result of like-minded people getting together – sometimes by chance – to address a problem. Encouraging academics and business people to spend more time together should be a high priority.'

Lambert Review of Business-University Collaboration, December 2003

I guess I'm one of those! I still run a small business, and working, researching and teaching is not without its challenges, particularly the demands on my time. However, it continues to be an extremely fascinating and an intrinsically rewarding experience. I learn a great deal. I find it very powerful to be able to frame my commercial work through the theoretical and research led lenses that I'm more routinely exposed to. I hope I have, in turn, been able to transfer ideas that are useful and instrumental from my own professional experience into the institutions that have taken me on. It is rewarding to be involved in projects that are leading to the creation of Flexible Learning Environments (FLEs). I am interested in the innovation of teaching environments able to provide support for the action learning and collaborative learning approaches I believe are vital for teaching in an internet saturated context. I have had the opportunity to teach courses using the constructivist and generative approaches I favour.

The Uncommon Ground meeting and subsequent publication has provided me with an opportunity for reflection on my experience of the forms of collaboration between universities and business. I have identified six forms for presentation and have chosen to focus on two and illustrate them with specific cases. The first case is that of a knowledge transfer and relationship building event in China, which focussed on 'Arts & Ecology' and which

has generated a number of ongoing projects and relationship in universities in China and the UK. The second is a lab form that we designed for IDE students at the RCA. It was a collaboration between retailers in the UK, crafts, production and business groups in Thailand and the Office of Knowledge Management and Development (OKMD) in Thailand. The collaborative development of a range of products to be sold internationally, within the context of groups from businesses and universities in both countries, was a powerful constructive enabler of knowledge transfer and exchange.

Allow me to reflect on the idea of a ‘form’ for a moment as I use the word in a particular way. Forms of social organisation are useful to my way of thinking as they help us to distinguish ways of organising, deploying technology or providing opportunities for people to meet and exchange – over time. The traditional academic forms for exchange are the conference, the written paper, the seminar or a book. The forms deployed by businesses – meetings, projects, trade fairs etc. enable business outcomes. The jargon and languages employed in both areas, the concepts of time, the relationship to cash, the definitions of excellence – are often different enough to cause suspicion and promote frustration for anyone coming from one domain and finding themselves a fish out of water in another.

I think that some forms are more powerful than others at achieving specific results and that the choice of organising form goes a long way to determine the efficacy of the interaction. A cocktail party is good for sharing gossip, and building relationships, but it’s not so good for generating plans for a new building.

Forms exist as a set of organised social relationships, technologies, knowledge bases, crafts, processes, stimulations, experiences. Their potentiality unfolds over time – with more or less structure and generative potential, I would argue, determined by the set of expectations and intentions of those present. The quality of the time spent together has a great deal to do with what is achieved over time. Creating a safe emotional environment is as important as engaging the participants in ideas that interest them. The

organising frameworks that are present, either through design or as an emergent phenomenon also impact the outcomes. A set of architectural frameworks yield a house, a set of musical frameworks, a song and a dance – and the presence and synthesis of both could, with sufficient support, generate a symphony. Henri Focillon when writing so poetically on the forms of Islamic Art writes:

‘These combinations are produced by mathematical reasoning. They are based upon cold calculation; They are reducible to patterns of the utmost aridity. But deep within them, a sort of fever seems to goad on and to multiply the shapes; some mysterious genius of complication interlocks, enfolds, disorganizes and reorganizes the entire labyrinth. Their very immobility sparkles with metamorphoses.

Whether they be read as voids or solids, as vertical axes or as diagonals, each one of them both withholds the secret and exposes the reality of an immense number of possibilities.’

Henri Focillon, *The Life of Forms in Art* (1934), translated by George Kubler. Zone Books, distributed by The MIT Press, 1989, pp. 41-42

If we genuinely want knowledge exchange to be instrumental and beneficial between different domains, it’s important to pay attention to the forms we deploy to do so. The best enable trust relationships, which lead to genuinely generative and emergent results. The traditional forms are problematic. Academic conferences are often closed systems whose language and set of relationships do not easily lend themselves to outsiders.

As a process for researching what works, I advocate the generation of a cloud of multiple forms and innovative opportunities for collaboration. This is an open approach, based on biological principles of diversity and selection, which acknowledges that some forms will be more successful than others, and some will fail. However, over time, we will all

learn something. The objective is to understand what really works to foster knowledge exchange whilst maintaining the respect and integrity of both domains.

Understanding the cultural context of each of these domains, by having people swap between them, is very powerful. I have come to understand the academic world from a new perspective in ways I could never have appreciated whilst a student. Without going into too much detail here I personally do not believe that academia must become more businesslike and businesses more academic. I believe though that the emergence of a common language at the margins is useful. For example, concepts such as the ‘learning organisation’ could be a useful patching mechanism at the points of intersection for both domains. For example, it is useful if there is more widespread understanding that a ‘learning organisation’ is a verb and not a noun. This is at the organisational level though – and these ideas sometimes get confused with that of content. When we talk of knowledge exchange, we are talking of the ability for the insights that emerge within academia, in any context, to rapidly transmit across a semi-permeable membrane with commerce and industry, and vice-versa.

These semi-permeable membranes then, consist of designed interactions. They are necessarily constructed situations that permit the transfer of both explicit and tacit forms of knowledge. They are in some sense performative in that they require the formation of a mise-en-scene, a stage, actors to play out their roles, and develop narratives that carry sustaining myths. Information is transformed into knowledge through action and internalised through story telling, ritual behaviours and visual metaphors. Like a boat, the quality of the form has a direct impact on the experience, the outcomes and the quality of the knowledge transmitted.

Gilles Deleuze, writing on the sufficient reason for reciprocal inclusion or the exchange of knowledge, describes the conditions at which ideas are able to fold into each other as being determined by a context he calls the Baroque. The forms highlighted below could be considered more, or less, Baroque.

‘If we go back to the model of the Baroque fabric, it could be stated that knowledge is known only where it is folded.’

Gilles Deleuze, *The Fold – Leibniz and the Baroque* (1993), translated by Tom Conley. Reprinted by Continuum Books, 2006, p. 56

I am most interested in the forms that teach without being didactic, or that are generative without being prescriptive. Ultimately, which forms set up the foundations of trust between groups, which enable them to exchange knowledge freely to mutual benefit? In an open society these forms are always redesigned, and continually reinvented. And when we have experienced the success of a particular form for a while, there comes a time when we tire of it, and it no longer transmits the efficacious power it once held to enable us to connect with each other.

I am reminded of the Curator of Contemporary Art, Hans Ulrich Obrist, who once curated a conference where they removed from the event all of the speaking sessions, and programmed only the peripheral events, dinners, registration and conference party. I’m told it was a huge success.

So then, let me describe six forms of collaboration between academia, commerce and industry. I’ve called them Research Osmosis, Cashademy, Café Culture, Sheep Dipping, Buscourse and Labtastic.

Research Osmosis is an instrumental form which plays published and bespoke academic research into a programme of work within commerce and industry. It requires a methodological framework for programme and project management which acknowledges either research phases or just-in-time ‘knowledge objects’ for decision-making. It is the usual channel through which Academia expects to transmit ideas into society. However, it requires either the ability for projects or commercial organisations to understand academic jargonese, or a translation service that synthesises the work into models and frameworks for easier digestion of the implications. This is not necessarily everyday practise for commerce and business, and there is little opportunity for feedback or discourse between the domains.

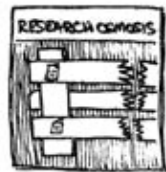


Buscourse
China



TCDC Workshop
Thailand





Research Osmosis



Sheep Dipping



Cashademy

The practise of translating such information may be found in those professional services and consulting firms committed to knowledge management systems. I have also seen government and European programmes that generate tremendous archives of relevant research papers, but little opportunity for the ideas in the archive to be instrumental in changing practices beyond policy recommendations. It requires a commitment to working with academic research in the everyday decision-making and problem solving processes of the organisation in order for these forms to have an impact.

Sheep Dipping, is what I rather unkindly call the placement of students and academics onto business projects for a limited time as subject matter experts or advisors. A useful practise for businesses, which benefit from exposure to people close to the most up-to-date research. It is important though that the academics are tasked with a manageable and coherent piece of work. This is different to students completing Masters theses using business case studies. When linked to a programme of work, the academics are asked to answer a set of relevant questions and to apply their particular academic lens to the answer. If there is not a clearly defined task for the Academic, however, it can be a frustrating experience for both parties. Businesses benefit from being exposed to thorough research methodologies and external frameworks. It requires groups of academics to have the tools necessary to understand the contextual frameworks of a given situation to get this right.

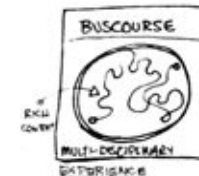
Cashademy is a more regular occurrence these days, where academics sell the services of their academics

to commerce and industry as advisors or as researchers. In so doing they compete with the advisory and consulting industries. The difference is that the projects tend to be research led and may not engage with implementation or specific programme of knowledge transfer. In the worst cases the research report simply ends up weighing down the shelves of a corporate library. It works well, where the research reports are seeking to answer specific questions that commerce or industry are facing. These can then be fed into the strategic and policy making cycles of the business. The attention paid to the design of the final report is as important as the quality of research. Businesses want important research to look important. The language must be free of academic jargon.

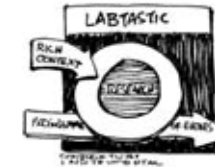
Café Culture is what I call the vast array of semi-formal events that can be arranged by academics to promote the semi-permeable layer of knowledge exchange. They include public seminars, debates, events series, specific learning events and social events. The idea is not only to provide a platform for promoting research and ideas into society, but also to promote the development of relationships between people in different camps. Societies and managed networks enable communities of interest. These less formal interchanges meet with a particular purpose or idea, enabling a free flow of ideas between people from outside the academics in a non-threatening environment. When done well, they are stimulating, enlivening and full of opportunities for informal questioning and exploration of ideas. Perhaps they include a meal. When not done well they can be as dull as any other two-biscuits-and-a-plastic-cup-of-tea academic experience. It is important that attention is paid to the design of the experience



Cafe Culture



Buscourse



Labtastic

and the environment. This can be a level of relaxed formality that many people are not used to. In the Café Culture form, as in the Baroque, the quality of the café is as important as the quality of the coffee served.

Buscourse is a radical form in which I was a participant in 2006. A conference, without formal agenda, held on a bus. Forty people from a number of different domains, academia, arts, business, creative sector, design were on a bus for 5 days in Guangdong Province, China. There was a very loose question concerning the exploration of 'Arts & Ecology'. The itinerary was designed and hosted by Hu Fang and Zhang Wei from Vitamin Creative Space, the Chinese arts collective. There was very little structure beyond the itinerary of the bus. There were few formal workshops outside of two occasions to meet together, hear a local presentation and have a discussion. There was no requirement to achieve an outcome, or define a package of work. The participants were invited simply to participate. There was on this occasion a great deal of informal documentation or what could be called 'sousveillance' – documentation by the group itself. There was no published agenda, nor was there a published logic to the route and stops of the bus. We made of that experience whatever narrative we chose. The outcome however, was a great deal of conversation between people, formal and informal, relationships built on all sides, and a number of powerful initiatives and ongoing programmes that have emerged from those relationships. Attention was paid to the balance of the interest groups that were invited. It was an extraordinarily diverse group. I would characterise this experience as a generative form. The lack of formal agenda meant

that participants were free to pursue, or not pursue, the ideas that they were interested in. Not everyone felt comfortable with the radical lack of structure. It was, however, deeply memorable for all concerned and the ongoing dialogue is impressive.

The final form, *Labtastic*, refers to formal institutions that are established to actively promote and conduct research between the domains – running events and conducting instrumental programmes and projects. A lab may act as an incubator, where sponsored inter-disciplinary teams, with members from both domains, work together for research and develop purposes. Examples of this form include Eyebeam in New York, or the Innovationlab in Denmark, Smartlab at the University of East London, or the Box Space and London Multimedia Lab at the London School of Economics. Based on learning organisation principles, and with a communications and dissemination strategy, a lab actively works to provide a platform for collaboration between the domains. A lab form may also exist for a specific project. I worked, using this form between the Thai Cultural and Design Centre (TCDC) in Bangkok and Industrial Design and Engineering (IDE) at the Royal College of Art and Design (RCA) in London. The purpose of the programme was to create joint teams from both groups in order to facilitate knowledge exchange. However, this was more than just a talking shop. Each team was tasked with researching crafts and production skills in Thailand, and Rapid Design Tools in London. They were given the specific purpose of jointly creating a range of products for the household furnishings market. The teams were supported with technology, process design, design resources, research, studio spaces and production teams. The approach was

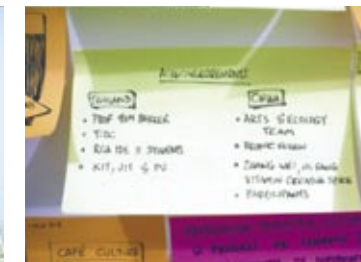
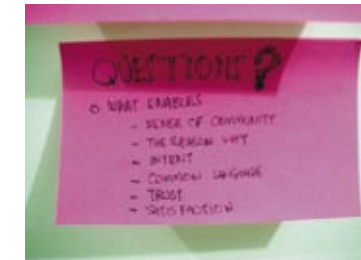
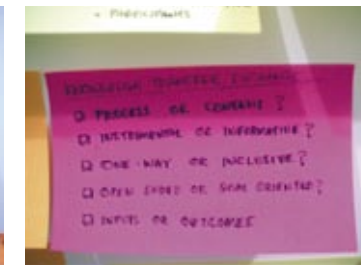
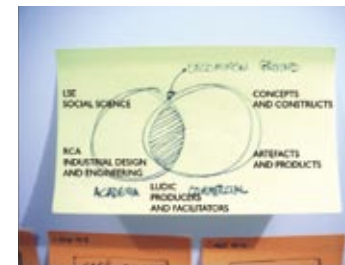
design led which provided a focus for enquiry and exchange between the groups. The design process was supplemented with seminars and followed by conferences and workshops. Representatives of business, from the retail sectors, the advertising, marketing and creative industries were consulted and acted as advisors at key points throughout the programme. Two artists placements (part of the Interact Programme described elsewhere in this book) were also included. Exhibitions were held and catalogues are being published to document the work. I call this a multi-modal approach to knowledge exchange in which ecologies of relationships, events and platforms are created and explored. Active learning principles characterise the design of the programme. International businesses based in the UK acted as advisors and provided yet further opportunities to exchange. It is a resource intensive form and requires significant infrastructural and conceptual support. We benefited a great deal from working with the sophisticated knowledge exchange models that underpin the Thai Office of Knowledge Management and Development (OKMD). The support and production teams enabled a creative atmosphere that led to significant exchanging and folding of knowledge on multiple-levels.

In conclusion, the form that is designed to enable exchange between the domains has an impact on the quality of such meaningful encounters. I am not advocating a return to classical formalism, but rather an appreciation of the role and impact that rich context, environment and constructive processes play in promoting knowledge exchange. In designing appropriate forms, consider the balance between an exchange of process or content knowledge; is the outcome simply an exchange of information or leading to instrumental action; is the exchange one-way or inclusive; is it open-ended or goal orientated; and, does it rely on participants to bring inputs, and will it seek to generate new forms of knowledge? Other questions I have come to consider are what will enable a sense of community (if that is desired); what is the reason why people should share; what is the common intention; how do we give sufficient opportunity for a shared language to develop amongst the group (visual, linguistic, models); and how do we

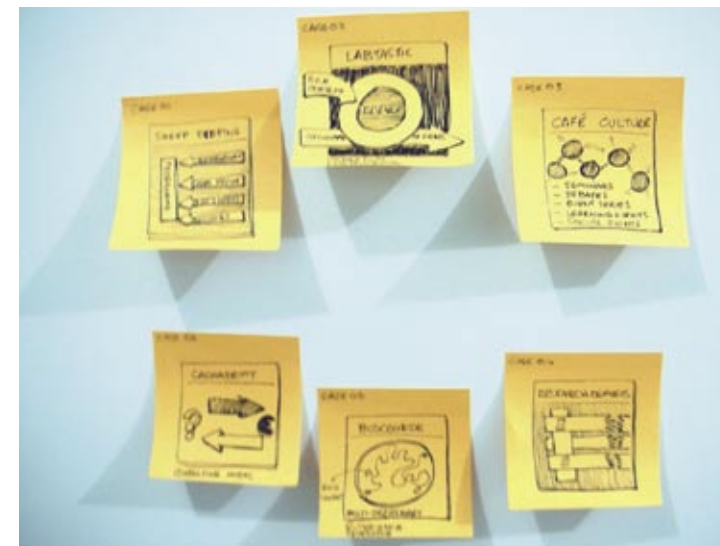
create an environment of trust?

Here is a quote from Jacques Rancière, lecturing on *The Ignorant Schoolmaster*, which when I first read it, caused me to think a great deal about how to facilitate the relationships between these domains.

‘It is this “knowledge” that the ignorant master refuses. This is the ignorance of this “knowledge of inequality” which is supposed to set the terms for the reduction of inequality. About inequality, there is nothing to know. Inequality is no more a fact that must be transformed by knowledge than equality is a goal that can be attained through the transmission of knowledge. Equality and inequality are not two states but two “opinions” – that is, two opposing axioms according to which the apprenticeship can operate, two axioms that allow no passage between them. All that one can do is to prove the axiom that one has given oneself. The reason of the master as he explains makes inequality an axiom: there is inequality between minds but we can make use of this very inequality, to make of it the cause of a future equality. The master is the superior being who works towards the abolition of his own privilege.’



Workshop





1



2



3

1. The design documentary 'Fred' was compiled using photographs made by 7 heart patients in the US and fragments of an in-depth interview with one of them

2. In the design documentary 'Debra' a British heart patient responds with a video diary to a letter written by a fictional heart patient, based on 9 interviews

3. In 'Kent' a British heart patient shows his everyday life around the house and his engagement with the community King of Hearts, in response to personal stories from 9 US heart patients

Geke van Dijk is director of STBY, a research company based in London and Amsterdam. STBY is specialised in consumer research during the early stages of innovative service design. Geke has more than fifteen years' experience in consumer research, both in industry and academia. She is a doctor in Computing Sciences, with a specialisation in Human-Computer Interaction. Recently she completed an extensive study on how consumers move between online and offline channels as part of their daily routines in media use. (Contact: geke@stby.eu)

STBY (Standby) offers research and consultancy on the uses of media and technology in people's everyday lives, now and in the near future. STBY focuses on research approaches and techniques that can be used at the very early stages of a design project when designers, in close collaboration with other experts such as engineers and marketers, need to discover what matters to the people they design for. STBY offers a wide range of services that contribute to this multi-disciplinary exploratory and creative stage. For more information see www.stby.eu.

Creative Collaborations for Innovative Service Design

1. Bruce Sterling (2005) *Shaping Things*, MIT Press

By Geke van Dijk

In the creative sector, cross-disciplinary collaboration and knowledge sharing have always been powerful catalysts of innovation. Nowadays, in the era of service design, this seems to be even more important than before. Since early 2006 service design has been an emerging theme in the creative industry. It brings together previously isolated activities such as interaction design, product design, industrial engineering, consumer research and services marketing. The reason for the emergence of a new label such as service design is that it expresses the fact that the most interesting and innovative concepts these days no longer exist as isolated products, devices or websites. They rather exist in a system, or network, of both tangible and intangible elements that together make up the service consumer's use and experience.¹ On Wikipedia, service design is described as the specification and construction of technologically networked social practices that deliver valuable capacities of action for a particular customer. These social practices involve artefacts, but also communication, environments and behaviours. Service design creates experiences for people that are available across many different touch-points and flexible in their use over time. The development of this type of services requires intensive cross-disciplinary collaboration and knowledge sharing, and in different ways than before. It requires a new, broader combination of disciplines, and a more design and consumer focused way of thinking.

2. Bill Moggridge (2007) *Designing Interactions*, MIT Press
3. Eric von Hippel (2005) *Democratizing Innovation*, MIT Press

The now classic example of a successful service design is the combination of the iPod with the iTunes software and the iTunes online music store. The overall service offering consists of tangible and intangible elements that seamlessly work together and allow consumers maximum flexibility to make their own decisions about how and when, and how intensively they want to use the service. Marketing literature refers to the type of technology involved in these services as Self-Service Technology. It permits consumers to actively engage with the technology and by doing so influence the specific outcome and the timing of the consumption process. Another example of service design is offered by some museums. In addition to the tangible exhibition visitors may use mobile devices to access background information (texts, images, sounds). They can also, if they so wish, store a personal selection of the information online for later reference, or forward specific fragments to others by email. In this way the actual visit to the

‘Most interesting and innovative concepts these days no longer exist as isolated products, devices or websites. They rather exist in a system, or network, of both tangible and intangible elements’

museum is extended to a wider service experience. Whether commercial or public, successful services need to be flexible across platforms, involve both tangible and intangible elements and allow consumers optimal freedom of use. Moreover, services need to be updated on a regular basis. The principle of sustainability needs to be firmly integrated in the overall service concept. In order to accomplish all this, a wide range of experts needs to collaborate. The technology and other components of services are complex and evolving at a rapid pace. It is impossible for one person to keep up-to-date with all the disciplines involved. People from various backgrounds need to collaborate in order to conceive, create, implement and maintain successful services. Whereas services were traditionally mainly considered to be of concern for marketers, substantial design and interactive functionality is now at the core of services.² Every member of the service design team needs to be fluent in design thinking, not only those who are formally trained as designers.

Consumer-driven innovation

The main focus of service design is the consumer. Some people even speak of the era of consumer-driven innovation.³ With Self-Service Technologies the consumers are ultimately in control. They make their own choices

4. Isabelle Szmigin (2003) *Understanding the Consumer*, SAGE Publications
5. Bas Raijmakers, *Design Interactions*
(http://www.rca.ac.uk/pages/research/bas_raijmakers_1495.html)

during the use of a service, and they demand optimal quality and freedom. Contemporary consumers are generally well informed about the options available to them, and they feel empowered to negotiate on the ways of use that suit them best. This forces service providers to be flexible and empathic to the needs and preferences of their customers. The days when they could rely on simple forms of customer relationship management to retain their customers, are over.⁴ Consumers are often involved in parallel interactions with several service providers. They collect a wide range of information, negotiate over the best deals available and then make up their mind on how, and with whom, to continue. In line with the ever-evolving technology, consumer preferences and routines are also subject to rapid change. It is therefore necessary to constantly innovate, update and customise services. In addition, it is important to engage in empathic conversations with consumers to learn more about their preferences, needs and concerns. An example of this is to involve ‘lead users’ in innovation processes³, as their practices of using and customising materials and devices often exceed the original expectations of the in-house developers. In order to obtain this type of consumer input it is not sufficient to conduct post-launch evaluative market research. The consumer perspective needs to be integrated in the service concept from the early stages of the design process. To achieve this, designers and developers work closely with consumer researchers who employ new research methodologies such as probe studies and design documentaries. To allow for cross-team conversations about consumer use of services, every member of the service design team needs to be consumer-focused and engaged in an active process of knowledge exchange.

‘The principle of sustainability needs to be firmly integrated in the overall service concept. In order to accomplish all this, a wide range of experts needs to collaborate’

An example of a service design project that employed design documentaries is ‘Fred, Debra and Kent’. This was a collaboration between the Royal College of Art⁵ in London and Philips Medical Systems in Seattle. The project investigated future services for people with medical problems, such as a heart condition. Three design documentaries (fig. 1-3) supplied the design team with personal anecdotes and experiences from the daily lives of actual heart patients. Viewing the design documentaries with the design team triggered lively and engaging discussions. This was mainly due to

the fact that the documentaries presented a wide variety of materials and storylines, rather than a report with clear cut conclusions. To provide inspiration in the early stages of a service design process, this type of consumer research seems to work better than conventional methods such as surveys or focus groups. Another example of a service design project, which employed both a probe study and a design documentary, is Cultures of Mobility. This was a collaboration between Goldsmiths College⁶ in London and France Telecom. This project investigated the lives of people working away from home for extended periods of time. The study focused on students from Eastern European countries who come to the UK as summer fruit pickers. Every year for up to six months, they live in transient communities. For the probe study some of these student workers were given materials to complete and customise, to give the design team a feel for their lives in their home from home. They used disposable cameras, several maps with stickers and postcards for this (fig. 4). In combination with a design documentary and the continuation of the study in the participants' homeland, a rich and inspiring mix of research data was gathered (fig. 5-7). The close relationship between the participants and the design team over a period of time resulted in a better understanding of mobility and offered fertile ground for the exploration of new service design ideas.

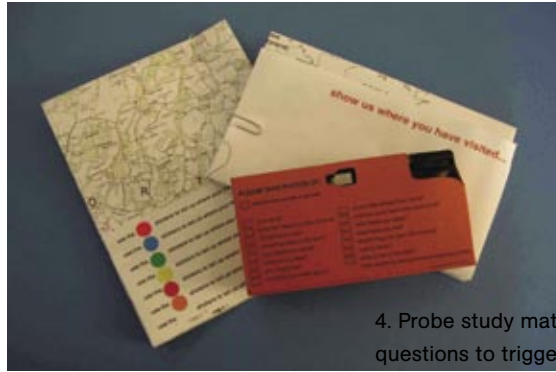
Especially in early stages of service design processes it is important to establish an empathic understanding of consumers, or lead users. It is crucial to collect real-life, and often elusive, consumer experiences to inspire the design team. The experience of 'being there' with the participants is very valuable to develop an understanding and trigger new innovative concepts. To accomplish this, various disciplines need to work closely together. It is not sufficient to just send out a researcher who files a report for the designers. The whole team needs to collaborate to create inspiring research materials, such as probes and design documentaries. Every member of the team needs to be engaged and consumer centred. The research is an integral part of the service design process. Both projects mentioned here revealed that consumers are active participants in a service-driven society. They are able and willing to decide for themselves how and when to make use of the range of networked, tangible and intangible service elements that are available to them. With these choices they define and co-produce the actual outcome of a service. The flexible, networked nature of services means that their usage can have various outcomes. The consumer ultimately decides which elements to use in a specific situation. This flexibility is crucial for successful service design; it needs to be firmly integrated in its concept. It is therefore important to investigate the process of consumer control and co-production, and to take inspiration from it. This is not to say that consumers need to be

actively involved in the actual design process. Co-design, or co-creation, is a design method that one can choose to employ. Attention for the co-production of services is not just an option. It is a necessity for the design of successful services.

Interdisciplinary collaboration

Of course not everyone has to jump on the new bandwagon of service design. There is always room for specialists making wonderful products in relative isolation. But for state of the art creative innovations, collaboration with people from other disciplines is needed and a willingness to explore uncommon ground. Most people in the creative industry feel positive about cross-disciplinary collaboration and knowledge sharing. They generally aspire to be engaged in this process. It is associated with great benefits, such as learning about new perspectives and venturing outside the box. However, anyone who has been involved in multi-disciplinary projects also knows how difficult it can be to achieve a good level of understanding and a workable mode for cooperation. People with backgrounds in different domains often have different routines and expectations, they use different terminologies and in many cases have different speeds of working. In the day-to-day pragmatics of a project these aspects can lead to difficulties that limit the collaboration process and the result. This is not a particularly new observation – in any past decennium you could probably find people collaborating across disciplines, and enjoying it as well as finding it complicated. But, in regard to multi-disciplinary projects in the area of service design, we can also see aspects that are specific for service design. For instance, the characteristics of the disciplines involved are different: Design can no longer be separated into design for tangible products and design for digital interfaces; Consumer research investigates the broad context of pro-active, creative and fragmented consumers, rather than being limited to merely evaluating usability; Engineering is no longer focused on one-time production and simple maintenance because devices and software constantly evolve; And, to supply continuous service across multiple touch points, marketing no longer focuses on securing a series of isolated sales. Experts from all these fields need to work closely together to accomplish successful services. They are establishing new routines on the go. A great challenge and a joyful experience, but at times difficult nonetheless.

There are no hard and fast rules for cross-disciplinary collaboration and knowledge sharing. It is a bumpy ride, and you have to accept that if you want to work on this type of projects. The added value of the outcome – that you could not have accomplished on your own – makes it all worthwhile. Some people seem to cope well in these circumstances, while others have more difficulty. The discussions during the Uncommon Ground Expert Meeting (Amsterdam, September 2006) indicated that personal attitude (enthusiasm, openness and good will) is a very important element. The attitudes of the people who are involved in multi-disciplinary projects were



4. Probe study materials with questions to trigger responses from the participants

5. Picture taken in response to the question 'What would you like to take back home?'

6. Picture taken in response to the question 'What smells different from home?'



mentioned as being as important as their expertise in a specific discipline and the type of organisation they are representing. Having prior experience in multi-disciplinary projects also helps. This may secure the process and offer some routines. But this aspect can also be facilitated or smoothed out by intermediaries and managers. They may transfer their experience to the newcomers in a project. The success of cross-disciplinary collaboration and knowledge sharing seems to lie partly in the engagement of the right people, and partly in attention for the right process. The concept of T-shaped people is very interesting in this respect. T-shaped people can be characterised as having their own in-depth expertise in a specific discipline and also a broad general understanding of various other disciplines. This helps them to communicate and successfully collaborate with other experts. In a team of T-shaped people⁷, everyone can discuss the broad outline of a service in terms of any discipline, and still make a specialist contribution to the project by working out details based on their own specific expertise. Such a team has enough overlap between the various experts in the team to be able to understand each other and to communicate and mutually inspire, but also enough variety between the areas of special expertise in order to develop innovative service concepts. The lines between the various disciplines are blurry. Trying to define the borders where the expertise of one person ends and that of another starts, is not very effective. This often leads to territorial discussions aiming to defend an existing status quo. These discussions indicate an effort to control every detail and to avoid any risk. This is impossible and unnecessary, and it forms a barrier to exploration. In the era of service design agile, multi-disciplinary teams are needed, with every member of the team T-shaped, and able to combine design thinking with a strong consumer focus.



7

Picture taken in response to the question 'What makes you sad?'

Consider™ by Wire Design
winning project of the DBA
Challenge 2006



Yanki Lee. With a Master in architecture and international architectural design experience, Lee's design has focused on public housing, design with locality, cultural development and community architecture. After studying the future of live-work buildings in collaboration with the Peabody Trust, Lee conducted doctoral design research entitled Design Participation Tactics, which aims to question and demonstrate different design tactics to get people to involved in design processes in the built environment. As a design researcher and educator, Lee is now working closely with different design communities, age-related associations and disability groups to develop different inclusive design methodologies and exemplar case studies.

The Helen Hamlyn Centre works to advance a socially inclusive approach to design through practical research and projects with industry. It was set up at the Royal College of Art, London, in January 1999 to alert designers and industry to the far-reaching implications of a rapidly changing society, i.e. a society in which there are growing numbers of older and disabled people, radical shifts in working patterns, and mounting pressure on mobility and other public services. Endowed by the Helen Hamlyn Foundation, the Centre runs programmes with three design communities - RCA students, new graduates and professionals in business and industry - to examine the design implications of social change and promote a more socially inclusive approach to designing. www.hhrc.rca.ac.uk

Facilitating Knowledge Exchanges through Inclusive Design

By Yanki Lee

Introduction

The practice of Inclusive Design¹ is working on uncommon ground to facilitate knowledge exchanges between different worlds including designer/user and academia/industry. Differences in operating styles, schedules and expectations between worlds can lead to misunderstandings when they collaborate. However, the experience of the Helen Hamlyn Centre (HHC) in developing the concept of Inclusive Design shows that these collaborations can be mutually enhancing. In this text, selected case studies from HHC's programmes are presented to show how HHC involves users in design processes to ensure better design and helps businesses to innovate through the creative application of the Inclusive Design process. Problems and issues arising from these collaborations are also discussed. Through working closely with users, the practice of Inclusive Design has become a common goal and a common language for different worlds, i.e. the language of facilitation through Inclusive Design.

Learning through doing

The HHC is a multi-disciplinary centre for inclusive design based at the Royal College of Art (RCA) which explores the design implications of social change and promotes a more socially inclusive approach to designing. Since Inclusive Design is a relatively new design research area and the HHC is one of the pioneers in the field, its main mission is to define and explore Inclusive Design through researches of the implication of design in different social issues for ageing and diverse populations. The HHC's knowledge exchange model is based on Action-Research (AR) approach, which is also called the co-generative approach, and follows a 'meaning-construction' process.² Close research relationships between the researchers (the HHC team) and those with whom the research is being conducted (users, designers, business, academia and other opinion formers) are developed. All agents share ownership of the processes, but in different ways.

The HHC's Inclusive Design knowledge development starts from two user groups: designers as information users and general public as target users. Working closely with different target social groups and the four defined design communities – students, new graduates, professional designers and academics through different programmes, it is crucial to understand their special needs and context.

Relationships with target users (end users)

The key element of the Inclusive Design process is to make sure designers design with target users in different stages of their processes. Therefore, the crucial collaborator for HHC's activities is the target users group, which has always been neglected in design collaborations. Among different user groups, the University of the Third Age (U3A)³, a network of life-long learning co-operatives for older people in the UK, is the long-term collaborator of the HHC. The relationship is started from personal contact between HHC staff members with individual U3A members. Gradually, more and more U3A members from different branches became regular visitors of the HHC, where they can share their knowledge with young designers. In a similar approach as to the older users, disabled users are treated as 'extreme users,' with knowledge to share with designers. We refer to them as 'experts of using'. The exchange model is between design knowledge and everyday life experience. Users are invited to take part in user forums (fig. 1) that allow them to talk to designers or design students. The format ensures that everyone is actively involved in the discussions about new design ideas. Over the years, establishing this user network is the core element for the HHC's inclusive design development.

Partnerships with information users (designers)

The HHC has worked with different design communities to help them integrate Inclusive Design methodologies and thinking into their own practice. Working with designers as information users involves two types of activities. Firstly, it is a knowledge transfer exercise whereby experiences of working with users from HHC's members are transferred to different design communities through adaptable and flexible mechanisms in four different programmes (described

below). Secondly, through the processes, designers are also treated as co-developers to investigate the new development of Inclusive Design through producing exemplary projects. This notion of inclusive design is not only about developing new design methods but it is more about stimulating new design thinking to design with people. For design communities, there are no Inclusive Design 'toolkits': It is more a question of adopting a new attitude.

By demonstrating the Inclusive Design process in different projects, HHC aims to encourage designers, producers and policy makers to adopt the ideology of considering 'other' people's needs and produce things addressing different social issues for a diverse population.

Inclusive design programmes and case studies

The frontier of the HHC's Inclusive Design knowledge exchange with design communities has been extended through the structural collaboration with several partners. Case studies of the programmes are presented here to discuss different forms of collaborations with these partners:

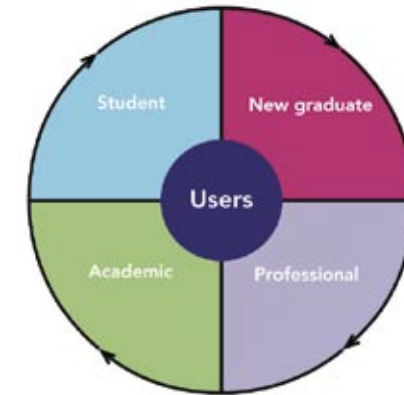
1. Academia and industry

The Research Associates (RA) programme teams up recent RCA graduates with business partners on year-long design research projects. The programme is co-sponsored by the HHC and individual industry partners. Given the close contact with the research partners, the relationships grow as innovative design research partnerships, rather than goal-directed, problem-solving design consultancies.⁴ Between 1999 and 2005 the HHC has worked with more than 60 organisations and companies from the corporate and voluntary sectors – from Philips to the British Heart Foundation.

Case A: The Power of prototyping – transforming the business culture of a retailer

The HHC shares Inclusive Design research experience with businesses and helps them develop an understanding of its impact on markets and industry. A good example is the collaboration with B&Q plc, a UK multinational retailer in the area of Do-It-Yourself products. In 2000, B&Q participated in the Research Associates programme and worked with a RCA

fig. 1: Helen Hamlyn Centre for Inclusive Design, working with four design communities



Social Vision: a new approach to presenting data. This project has developed a new form of visual communication for a social trends think-tank that not only enhances its client presentations but also helps to deepen its quality of analysis and understanding of ideas. By Thea Swayne, RCA Communication Art & Design



Industrial Design Engineering graduate Matthew White to conduct an audit of existing products and to develop guidelines for their buyers for more inclusive products, especially those outsourced abroad. The project began with a review of own-brand B&Q power tools to help make the range more socially inclusive. ‘Power tools were an area that had been largely ignored in terms of user-centred design,’ explains White. After observation, White decided to carry a far-reaching user research phase, which aims to identify the real-life problems that customers might have when using a range of power tools. In order to get the most reliable data, White conducted three scales of user research with users from different backgrounds. It included a group of professional users, including a group of retired cabinet-makers. Users diaries – users were invited to participate for an eight month period, providing a detailed evaluation of existing tools and trying out new concepts throughout the process.

1. Task – performance – users were asked to perform specific DIY tasks with various tools and compare this experience with doing the same tasks using test concepts and prototypes.
2. Prototype testing – during the most intense concept creation stage, involved straightforward product feedback and evaluation.

User research inspired a series of inclusive design product concepts, including a compact cordless screwdriver and a palm sander with a hand strap. Each concept addressed key ease-of-use factors for each product, such as size, weight, configuration and semiotics. Since the launch of the ‘Sandbug’ and the ‘Gofer’, Inclusive Design has become part of the B&Q company culture and marketing strategy, enabling a fresh, rather than conventional market approach. The long-term partnership between B&Q and HHC shows that the context of the academic environment allows research questions to be considered freely outside the competitive commercial environment and close to the consideration of the end users, which is the core concept of Inclusive Design.⁵ By rethinking design issues and the development of new typologies to address users needs, the collaboration has helped B&Q to explore the potential

of its own ‘Design for Life’ brand. Since then, B&Q has commissioned design consultancies to create more human-centred B&Q products.

Case B: Creative Edge – exchanging with a social trend forecaster

What HHC can also offer businesses is inventiveness, lateral thinking and the network of support from design communities, especially from the RCA design departments. An example is the involvement of the Future Foundation, an independent think tank and social trend forecaster that helps businesses and organisations to understand their customers and present a clear understanding of the world through research. Its collaboration with the HHC involved an exchange of the quantitative research data of different social trends with the professional and creative images of the future created by designers. Since 2005, the partnership was further developed when the Future Foundation co-sponsored a RCA communication art and design graduate as a Research Associate to rethink their social trend data and create a new visual language for discussing social change.

2. Academia and design professionals

To reach design professionals, the HHC joins forces with the largest UK-based trade association for design businesses, the Design Business Association (DBA), to set a creative challenge in the form of an annual mentored design competition for design professionals. They are asked to design for the mainstream market but include the needs and aspirations of users with disabilities. The scope of each project is discussed with the teams and a customised process of Inclusive Design is developed with them, consisting of demographic, ergonomic and project specific data; case studies; user-research methodologies; appropriate website links and contacts with experts in the area under study whom they can consult at all stages of design development. A project-specific user group is organised at the beginning of each project.⁶ Since 2000, 35 different design consultancies from a spectrum of design disciplines have taken up the challenge.

Case C: Inclusive Design networks – inspiring a communication design consultant

Primarily, the challenge model aims to help individual design companies and designers adopt Inclusive Design methodologies through hand-on experience of Inclusive Design. Six years of this model have shown that some of the participating design professionals have become part of the wider Inclusive Design networks and can effectively articulate the importance of Inclusive Design for the development of new business to their clients. They can also become Inclusive Design ambassadors for the HHC and co-develop and demonstrate the implications of Inclusive Design. The case of Wire Design is a good example. Since Wire Design won the 2006 Challenge with its design project Consider™⁷ director John Corcoran was invited to be a judge of the DFOFS Inclusive Design student awards and to be one of the five DBA designers selected to be team leader in the 48-hour Inclusive Design Challenge in Kyoto held during the 2nd IAUD International Conference on Universal Design conference, organised by the Japanese network organisation the International Association of Universal Design in October 2006.⁸ Working with Julia Cassim, HHC’s Senior Research Fellow who coordinated the event, the association with the HHC has enhanced Wire Design’s profile as a people-centred design consultancy that uses Inclusive Design as one of their company’s philosophies.⁹

3. Design academia and academia from different fields

In addition to facilitating the academic and industry worlds, another part of HHC’s work is to co-develop the Inclusive Design methodologies with other academic partners such as design students, design tutors and other academic researchers.

An annual awards scheme, ‘Design for Our Future Selves’ (DFOFS) Awards, provides chances for graduating RCA Masters art and design students to explore Inclusive Design methodologies and best practices, which they can diffuse outwards into industry. Small research bursaries and user research advices are offered to encourage students to integrate Inclusive Design processes into their

learning exercise. The projects cover a range of disciplines at the RCA from Industrial Design Engineering to Ceramics & Glass. They demonstrate the innovative design qualities and commercial potential of student work, most of which has been developed with groups of ‘critical’ users, who are able to challenge the design briefs and encourage students to stretch the creative envelope in unanticipated ways. Working with RCA design departments is also a crucial part of the practical application of Inclusive Design and provides a model of how to integrate key principles into mainstream design education.

The other academic collaboration is through the *i~design* project, an integrated series of research initiatives funded by the Engineering and Physical Sciences Research Council (EPSRC) in the UK, that captured and critically reflected upon the whole spectrum of the HHC Inclusive Design experience and knowledge. The HHC collaborates with the universities of Cambridge, York and Dundee with the aim to theorise and disseminate the practice of Inclusive Design through publications and the organisation of the biannual INCLUDE and CWUAAT (Cambridge Workshop on Universal Access to Assistive Technology) conferences. These collaborations allow knowledge of Inclusive Design to be further developed through discourse and the formation of an informal international Inclusive Design network.

Issues encountered in knowledge exchange through inclusive design

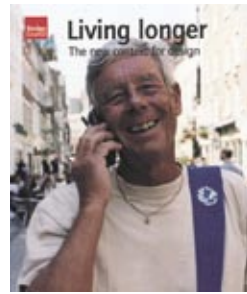
Through collaboration with different research partners, design communities, industries and governmental departments, the HHC has developed and promoted the effectiveness of Inclusive Design as a tool for collaboration and innovation. However, despite many successful stories, some issues do arise from the potentially conflicting stances and intentions of the academic and commercial worlds throughout the implementation process of Inclusive Design.

Creative incentives

The first issue is the complex management of the logistical and ethical aspects of conducting Inclusive Design user research. The HHC’s approach to user



Matthew White – *DIY tools* (design research project for B&Q, 2001)



Living Longer written by Roger Coleman of the HHC, 2001, it can be downloaded from the Design Council web site

research differs to conventional market research because users are treated as design partners rather than study subjects and the HHC actively engages with the users' aspirations and professional experience. The Data Protection Act 1998 and the RCA own ethics code also underscore this research relationship. This different perspective towards user involvement can make HHC's projects more complex and time-consuming than commercial market research. Fast-moving businesses can become frustrated by this factor. First of all, the HHC spends a lot of time and effort building up and maintaining the relationship with users, which is not necessarily the case in conventional market research projects.

The best example is the relationship with disabled users. They are treated as creative users who invent or research objects for their own special needs. Most of the time, they are not paid to participate in HHC's knowledge transfer exercises for designers. Instead of paying incentives, HHC members build empathy with people and offer them interesting experiences to work with designers. They are also involved in some user researches in commercial settings through HHC. An important development is to develop consent forms for both designers and users and set out guidelines to ensure that the way inclusive design is conducted is appreciated by all parties in different situations. All these efforts aim to ensure all participants actively exchange knowledge in a positive manner.

Sustainable relationship

The second issue is how to develop and maintain long-term relationships with all participants. Adapting and understanding Inclusive Design methodologies is always a hands-on and personal experience, which inspires individual designers and design managers. However, while this knowledge rests with those inspired individuals, it is often not embedded permanently within the organisation. Thus when these individuals move on, the knowledge moves with them. The HHC puts a great deal of effort in to ensuring that knowledge of Inclusive Design is transferable from individuals to organisations, but it remains a tough issue to tackle. Currently, in an effort to solve this issue, the HHC is developing Inclusive Design experience 'toolkits' which include personas based on real users that can be adapted by both individuals and organisations in different contexts to develop their own inclusive processes.

A similar problem is faced in maintaining the users' network. In the case of U3A, the relationship started in the 1990s during the DesignAge period, when large numbers of individual older users became the part of the user network. Unfortunately, a lot of them have passed away in the last ten years, and the network needs to be constantly rebuilt. The tactic is to transfer Inclusive Design research experience to design communities and encourage them to build their own user groups, recording their new 'users' data and building a main user database for the Inclusive Design network.

Sharing ownership

Finally, a fundamental issue is the different approach to knowledge sharing. Academies generate knowledge, disseminate it to the world in an open way and aim to improve people's lives. In the corporate world, however, the issue of confidentiality is central to the protection of ownership of ideas and future profit from the outputs. Many HHC projects start in an open academic setting and result in a design innovation for which it is later difficult to get further commercial backing. One of the reasons is that the project already exists in the public domain and is consequently less attractive to companies. This is sometimes called the 'not invented here' syndrome – a common phenomenon for the winners from both DFOFS Inclusive Design student awards and DBA Design Challenges. Although they can be good self-promotion projects for design colleges and design companies, it is very difficult to find investors to take up these well-developed and much publicised design concepts and realise them in the real world. How open forms of academic disclosure are to be combined with the protection of Intellectual Property during product development must be carefully considered if we wish to give more of these inclusively designed products and services a chance to reach the real world.

Common Language on Uncommon Ground

By encouraging a co-design process with people at its heart, HHC's Inclusive Design methodology is about bridging the academic and commercial worlds. Instead of focussing on the commonalities between them, the HHC works on the uncommon ground between different partners of design development and helps them to define and secure their needs in the implementation of Inclusive Design. The HHC encourages students and graduates to conduct socially focussed research firmly based in real world contexts. The academic community is a natural part of the team, exploring, analysing and documenting the Inclusive Design methodologies that emerge. Businesses are provided with a platform to innovate through the Inclusive Design process, and in return they act as commercial testing grounds for the innovations in the products and services that result from HHC's Inclusive Design research.

I would like to thank all the participants in the design projects (users, design communities and partners). Special thanks to Julia Cassim, Jeremy Myerson, Geke van Dijk and Bas Raijmakers for their valuable comments, and to the other HHC members who provided useful information and inspiration.

1. The new British Standard BS 7000-6 (2005) defines Inclusive Design for business as: 'Design of mainstream products and/or services that are accessible to, and usable by, people with the widest range of abilities within the widest range of situations without the need for special adaptation or design.'
2. Greenwood, Davydd J (1998), *Introduction to action research: social research for social change*. Country, Thousand Oaks: Sage Publications
3. www.u3a-info.co.uk
4. Gheerawo, R. et al. (2006) *Human Frame*, The Helen Hamlyn Research Centre
5. Ibid
6. Cassim, J (2006) *Challenge 2006 > how designers respond to the demands of inclusion*, The Helen Hamlyn Research Centre
7. A new adaptable software that simulates different vision impairments in the graphic design process and enables communication designers to see their work through the eyes of others
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9. <http://www.wiredesign.com/page/7>

Second Generation Diversity Therapy Prototype



Sam Bucolo has worked as a design consultant and design researcher within small to medium design agencies both locally and internationally. He is currently Research and Development Director within the Australasian CRC for Interaction Design. As part of this position he was the project leader for the Diversionary Therapy Project, which has recently been spun out into a new commercial venture. As part of the creation of the Diversionary Therapy Technologies company, Sam will be responsible to the ongoing Research and Development for this project. Sam has published widely within the field of emerging design tools and evaluation of virtual environments including research within the field of Ambient Intelligence and Ubiquitous Computing as applied to emergent tangible interfaces and consumer devices.

The Australasian CRC for Interaction Design (ACID) is a Cooperative Research Centre funded by the Australian Government and industry. Its core business is R&D and the commercialisation of content and technologies in interaction design. With over 20 contributing partners in the education and corporate sectors, ACID forms a bridge between ideas and industry. Diversionary Therapy Technologies Pty. Ltd are world leading providers of an evidence based medical Diversionary Therapy Platform and Solution. It is a medical devices company who specialise in the research and development of innovative media based diversionary therapy products.
www.interactiondesign.com.au

Celebrating a Common and Uncommon Ground – A Case Study

By Sam Bucolo

Introduction

Interaction design is about finding better ways for people to interact with each other through communication technologies. Interaction design involves understanding how people learn, work and play so that we can engineer better, more valuable technologies that are more appropriate to the contexts of their lives. As an academic discipline, interaction design is about the people-research that underpins these technologies. As a competitive tool for business it is about creating innovations that have market pull rather than a technology push. Many examples can be found which demonstrate the value of interaction design within both industry and academia, however finding the common ground between this spectrum of activity is often difficult.

Differences in language, approach and outcomes often lead to researchers from either side of the spectrum complaining of an uncommon ground,

which often results in a lack of collaboration within such projects. However, as demonstrated through this case study, rather than focusing on finding a common ground to assist in better collaboration between industry and academia, celebrating the uniqueness of each approach whilst bridging them with a common language can lead to new knowledge and commercial innovation.

This case study will focus on the research and development phase of the Diversionary Therapy Platform, a collaboration between the Australasian CRC for Interaction Design and The Royal Children's Hospital (Brisbane, Australia). This collaborative effort has led to the formation of a new commercial venture, Diversionary Therapy Pty Ltd, which aims to bring to the market the research outcomes from the project. The case study will outline the collaborative research and development process undertaken between the many stakeholders and reflect on the challenges identified within this process. A key finding from this

collaboration was allowing for the co-existence of the common and uncommon ground throughout the project. This concept will be discussed further throughout this paper.

Diversiory therapy case study

A collaborative study between the Stuart Pegg Paediatric Burns Centre located at Queensland's Royal Children's Hospital and the Australasian CRC for Interaction Design (ACID) was undertaken to investigate the use of Augmented Reality within the constraints of the clinical setting and required medical procedure. ACID was approached to investigate the development of an appropriate solution. It was felt that ACID could value add technology approaches as it is focused on understanding how to engineer better, more valuable and more appropriate technologies to the contexts of people's lives. ACID provides a capacity to analyse unique situations – such as this hospital context – and then design and develop interactive devices and media appliances to suit people's real needs.

The multidisciplinary research team consisted of medical physicians, industrial designers, content developers, computer scientists and business strategists. A human centred design process unified the team, with all members of the group being involved at each critical stage of the project. It was expected that the outcome of the research would result in a combined hardware and content solution which could then be evaluated within a clinical environment to quantify the benefits for the management of pain as a diversionary therapy approach for paediatric burns patients. In addition to this, from the outset of the project it was clear that the project was to have a commercial outlook to ensure that the research outcomes could be transferred to achieve its market potential. This latter requirement provided an alternative metric to evaluate the project and provided an additional avenue to further the collaboration.

Diversiory therapy – background

Dressing changes in paediatric burns patients is a painful but necessary procedure which requires the child to see a physician on a 3 to 7 day cycle

(potentially over a 3 month period) where dressings need to be removed and examined and then reapplied. This particularly painful experience generally causes anxiety in both children and parents. Current pain and anxiety management relies heavily on drug intervention, often requiring the child to become completely sedentary. An alternative approach is the use of diversionary therapy for children. This typically involves the child's attention being diverted during the removal of a dressing or examination of a burn.

Diversiory Therapy is a recognised procedure in pain management. The predication is that pain perception has a strong psychological component. Basic cognitive techniques have long been used in conjunction with sedation. This typically includes employing strategies such as patient distraction, breathing exercises, reinforcement of positive behaviour, the use of age appropriate imagery and behavioural rehearsal. These techniques are limited by a regression of interventional effects during subsequent treatment sessions. Techniques such as colour murals, book reading/ videos, interactive toys or music therapy are often used. Such techniques have remained unchanged for the past 10 years. Without diversionary therapy, additional drug treatments are often prescribed to settle the patients.

Virtual reality (VR) systems have been successfully trialled in small numbers of burns patients (e.g. University of Washington). Most of these trials have been conducted in adolescents and adults. The efficacy of VR systems is based upon the gate control theory of pain. This proposes that higher order thought processes can alter how an individual interprets pain signals and can even change the amount of pain signals entering the brain. VR can therefore reduce both the emotional and sensory components of pain by focusing attention away from a painful stimulus.

Immersive Virtual Reality, which relies primarily on the visual sensory channel, is difficult to achieve with children. Poor user acceptance of Head Mounted Displays (HMD) within this age is a common observation. Further the potential for damage to a child's eye development from extended periods of viewing of a



Early stage prototype used for discussion and clinical trials during the project

near field display (common in HMD units) make the use of VR in children inappropriate.

At the other end of the technology spectrum, commercially available portable game consoles do not currently offer the level of immersion through additional sensory channels. Such consoles provide complex interactions through a limited keypad configuration, where the player must learn multiple keypad selections to interact with the content. Further the console / content relationship is to engage the player for extended periods (hours) with the player being rewarded when significant time is invested. Within a diversionary therapy context such as a burn dressing removal, the engagement period is typically short (30 minutes) where the interface must be both learnt and the reward provided.

Therefore the Diversiory Therapy platform was aimed at enhancing the existing research in the use of Virtual Reality and the use of computer games as a diversionary therapy device by enhancing the level of immersion experienced by the patient through the use of multimodal interaction, specifically the use of gesture interaction. By creating a tangible interface which controls the interaction of the 3D content, immersion can be enhanced by not relying on the visual medium alone.

Finding a common ground

The starting point for the project was assembling a team which acknowledged that the focus of the project was centred on the development of a new device. This essentially became the common ground for the project. The use of the artefact as a common

reference point was a critical success factor to unify the research team. The focus on the artefact provided them with a need to collaborate, whilst providing an environment to expand their individual discipline domain knowledge. The structure of the team included:

Medical practitioners who provided input into the research context, the specifics of the medical procedure and an understanding of pain score measurement

Interaction Design which provided expertise in multimodal interaction frameworks

Industrial Design which provided technology and manufacturing expertise

Content Developers who assisted in identifying appropriate age specific content frameworks.

Computer Scientists who supported the software frameworks to match the required interaction parameters

Business faculty researchers who provided market research and business strategy.

Throughout each stage of the process most of these team members were virtually brought together to contribute to the development of the device and the ongoing research required to validate its use within a clinical environment. It was at these points where members could impart and share discipline knowledge to ensure that the goals of the project were being achieved.

The research and development process began with the use of sketches, form mock-ups and functioning prototypes to understand the common research

problem, which could then be broken down into discipline specific research questions. 3-Dimensional perspective sketches, 2-Dimensional technical sections and contextual photographs which are quick to generate and distribute to a geographically disperse team enabled the group to quickly understand the broader issues and develop a common approach to the development. The use of such tools, which became the common artefacts among the group, allowed for an initial functioning prototype to be developed and deployed in a clinical setting in a matter of months. Getting a prototype developed in this time frame was an enormous challenge and achievement for the group and allowed for critical feedback from all members of the teams and from end users on the project's potential.

During this phase of the development cycle, the role of the project leader was critical. His role was to extract the specific knowledge required to further the development of the project and to assist in translating the often conflicting needs from the various discipline groups. As seen in many projects of this type, there is often an overlap in the expertise between discipline groups.

Ensuring that these boundaries are respected, but not exclusive, is often a difficult balancing act that the project leader faces. Discipline language and the many definitions similar terms have in a common is often a source of conflict. Debate on the discrepancy between a discipline's understanding of terms such as 'concept', 'context', 'prototype', which often cause unnecessary delays, can be avoided through a project leader who is able to translate between discipline's meanings. Further focusing conversation for terminology on the artefact and its application within context can reduce any potential for confusion as they could be discussed within this context.

Ensuring that a common ground could be found through the use of focusing on the artefact was a critical success factor in this project. At an industry engagement level the first generation prototype allowed for the validation and demonstration of the potential of the approach early within the development phase. From a team collaboration perspective,

the artefact allowed for focused discussion and direction, with the clinical results providing a tangible measure for the team to assess their input.

However, as this was a research development project, an understanding that the collaboration had to flow both ways was also critical. Unlike a consulting project, where knowledge is often uni-direction, the Diversionary Therapy project engaged academics to undertake research and development. Therefore the researchers had a requirement to both contribute to shared knowledge while growing their own discipline knowledge. In addition to this the researchers had the challenge of working within an industry funded context. Ensuring that multiple wins could be achieved from the project is discussed in the following section.

Celebrating an uncommon ground

There are many perceived disincentives by researchers in participating in cross disciplinary collaborative research projects. Often there is a high participation overhead through increased communication; there is a lack of control on the direction of the project; it is often difficult to publish outcomes as they are not discipline specific. If there is an industry component often the need to focus on the short term outcome, rather than on the longer term research quality, is often cited. However as the variables in bringing an innovation to market become more complex, the need to collaborate across disciplines and sectors is essential. As mentioned previously, contributing to the development of an artefact allows focus and direction within a cross disciplinary team. However from an individual researcher's perspective, acknowledging that discipline specific research questions and new knowledge must be gained is also an essential element to the success of such projects. To overcome this, it is suggested that the uncommon ground between researchers is celebrated within such projects ensuring that they both contribute and take away knowledge from the project.

In the case of the Diversionary Therapy project it was quite obvious what each member had hoped to gain from the collaboration. For example the interaction design team had hoped to expand their understanding

of multi modal interaction; the software development team could test a software application within a new context; the clinical team furthered their understanding of diversionary therapy. What became evident throughout the course of the collaboration were the many sub-artefacts which emerged. These had a primary meaning and purpose to the discipline which generated it, but also a secondary value across the project. These sub-artefacts (or the uncommon ground) included specific reports, evaluations and small technical developments which result from a particular interaction with the overall artefact and team. It was these sub-artefacts which embed the discipline knowledge and will continue to evolve long after the development phase of the project has completed.

Again the role of the project leader is critical in finding the balance between keeping the group focused on their contribution to the overall outcome of the project (the common ground) and ensuring that each individual discipline which is represented in the project has the opportunity to explore discipline specific research questions (the uncommon ground). If the project is truly collaborative across disciplines and with industry, focusing just on the common ground has the potential to lead to resentment from the researchers who may feel they are not undertaking quality research, whereas allowing individuals to become solely engaged with the uncommon elements of the project may lead to dilution and fragmentation of the overall outcomes. Projects such as the Diversionary Therapy project provide a rich foundation to allow for a balanced collaboration to occur. However having a project leader who can see the potential to rapidly make the uncommon common, whilst allowing for the uncommon to evolve over a longer timeframe, is essential.

Conclusion

Although collaboration is often discussed, reflecting on the process to identify its merits and acknowledging its difficulties is often overlooked at the expense of final project outcomes and deliverables. This case study has hoped to demonstrate the benefits of undertaking cross disciplinary collaboration through the reflection on a recent collaboration which spanned academia and industry.

The findings seem remarkably simple yet are often difficult to implement. Collaboration will not just evolve. Being explicit as to the outcomes of the project will ensure clarity and focus for the team. Describing outcomes in terms of an artefact (which could also be a service) will help define the common ground of the team. However teams should also be encouraged to be explicit at the start of the project to define their expectation of what they hope to achieve from the project and overall collaboration. Having a project leader which can balance and ensure the spectrum of expectations is met will enhance the chance of a successful collaboration and project outcome.

It is unlikely that one approach to collaboration will ever be achieved. However, learning from other projects is a critical step to ensure that researchers and industry partners continue to undertake the challenge of collaboration. It is hoped that the key learnings from this project, encouraging both a common and uncommon ground to coexist in collaborative projects, will be explored and reflected upon by others.

As for the Diversionary Therapy project, it continues to gain momentum. It faces new challenges as it moves from a research environment into a commercial setting. However the project remains collaborative and the basic elements which have underpinned the project to date, celebrating the common and uncommon grounds, will be maintained.

Acknowledgement

This project would not have been possible without the expertise provided by the many academic and industry collaborators who have contributed to this project. Their continued belief in the project is acknowledged and greatly appreciated.

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Creative Spaces and the Knowledge Economy

By Tim Putman

This book contains stories told by a range of innovative specialists who have extended their reach to engage with others who hold complementary expertise or experience. Rather than think of what they are doing as seeking common ground for knowledge exchange or transfer, they found more resonance in the notion of uncommon ground. Is there a pattern here which, if connected with a wider set of experiences and accounts, would suggest it could pay to work further with the notion of uncommon ground?

The process of recognition

The key to the appeal of ‘uncommon ground’ lies in how it juxtaposes difference and relation. For those exploring new relationships, it suggests an appealing heuristic. The search for ‘common ground’ carries risks of presumption while involving a reductiveness in the definition of interests, possible outcomes and above all the potential for learning from others. Discussions of otherness, alterity, and liminality in

cultural studies, on the other hand, are rarely aimed at offering pragmatic resources to those who wish to work with and across difference. Awareness of uncommon ground, therefore, is awareness of a possible relation across difference. Where there is no will to relate, however implicit, the shadow of the other lacks substance and definition. In this respect, whatever might be its premises in motivation, awareness of uncommon ground can be compared to awareness in romantic love. It’s desire that delineates difference, something which needs to borne in mind in the process of engagement, where misrecognition is a recurrent hazard.¹

There’s a variation on this pattern that has to do with self-recognition. A situation of uncommon ground may arise where established awareness of being in the world has been disrupted by altered circumstances. This produces a sense of estrangement from the world, which has to be re-imagined to restore coherence to the self. Much of what we recognise as

innovation arises from managing the consequences of finding the world no longer so familiar.²

Uncommon ground is thus a phenomenon of imagination. Charts of when and where it arises may have objective co-ordinates, but these gain their significance as perceived and enacted. With a good set of objective descriptors, it is not difficult to predict who will fall in love with whom. But the courtship is played out in the structure and rhythms of distinct imaginations, which, although they may intersect, need hardly be congruent.

Knowledges and practices

That is not to say that the circumstances that give rise to uncommon ground may not vary significantly. As this book shows, the spaces for creative engagement perceived by contemporary creative explorers may be dramatically reshaped by changes in institutional circumstances and agendas. In particular, the elaboration of knowledges and the division of labour have opened uncommon spaces between those formerly familiar at least since the eighteenth century.

Of all the initiatives of that time to capture and codify know-how as book-knowledge those associated with the French *Encyclopédie* are the most celebrated. For the *savants* concerned, this process of discovery and description involved puzzling, frustrating and even dangerous adventure. Beyond the culture shock of unfamiliar customs and the difficulty of grasping structure amidst intricacy, lay the doubtful collaboration of the subjects studied. In the case of iron smelting, the usual ‘scientific’ objectives were overlain with a pragmatic consideration of national interest: how was it that the British were able to produce a cast iron that was stronger at high temperatures and less brittle at low ones?

The design of smelting furnaces could be suitably recorded employing the drawing conventions being elaborated at the time, and the basic sequence of movements of materials to and from the furnace seemed simple enough to describe. However, the adequacy of the Encyclopaedic accounts failed the crucial pragmatic test; they did not provide the know-how to make iron with the desired qualities,

or indeed any particular qualities at all. Efforts were redoubled; spies were sent to work in British ironworks, to learn how it was done, but to no avail. This was not like the textile where trade secrets could be captured in a notebook because they were objectified in machinery. Was there, as some historians later believed, an arcane furnaceman’s art?^{3,4} Possibly. But when more adequate techniques of analytical metallurgy were developed in the next century it was discovered that the deficiencies of French iron were due to the presence of phosphorous and or sulphur in the materials used. The Encyclopaedists had been looking hard, but not in the right place. Prisoners both of their suspicion and their mystification of the artisans they studied and driven by short-term institutional imperatives, they misrecognised the uncommon ground on which they stood.

This type of misadventure is as prevalent, perhaps more prevalent, than successful cultivation of uncommon ground. The combination of circumstances that open particular prospects of engagement rarely rests stable for long; the ‘uncommonness’ may be bridged to become common ground or fall away altogether. Most important, the direction in which uncommon ground is sought, by whom, and with what prospect of mutual recognition and engagement, may swing sharply, with dramatic consequences. To exemplify this we will briefly examine a handful of key moments in the emergence or disappearance of uncommon ground.

The contingency of opportunity

The end of the nineteenth century saw a wave of initiatives to encourage industry in the Indian subcontinent. These were largely resisted by the Government of India, not from a perceived economic conflict of interest, rather the objection that measures proposed would not have been necessary or met with acceptance in Britain. It had been very different when the English East India Company established entrepôts in the seventeenth century; what enterprise, what desire to engage! Key British and Indian imaginations became congruent to the point that, the Company could begin to expand its purchases for export by entering the market for services, organising the

collection of land revenue on a foreign continent. As the competition among potentates and European powers in the eighteenth century made domination an issue of trade, the know-how and resources derived from this cultivation of uncommon ground provided a fundamental strategic advantage to the English Company. Land revenue collection became a strategy of dominion, financing an expanding surplus remitted in the form of Indian industrial exports.

But while the imagination of those in charge of the Company was being drawn into the intricacies of land tenure, the competitiveness of Indian industries and the marketability of their goods were also requiring attention. As the volume of exports expanded, it began to intersect with scientific and technological progress in Europe. India's leading position in world textile production was no sooner harnessed by the East India Company than it began to be undermined by industrialisation in Britain. But the imagination of the Company's trading personnel was easily drawn onto the uncommon landscapes unfolding in the transformation of materials and processes far away, and the scale and pace of industrial revolution soon outstripped any response they could make.

Further, as economic agency multiplied and diversified in Britain, the legitimacy of chartered trading companies was undermined by the liberal ethos of competition. The Company ceded its trading monopoly and acted more and more like a branch of Britain's government, staking out a utilitarian 'common ground' of administrative and legislative reform. In a complete turnaround of institutional focus, Indian industries were left to fend for themselves against increasingly sophisticated competition. This disengagement was justified by the view that free trade would ensure that productivity resulted in lower prices, so it didn't matter if countries industrialised or not.

The industrialisation of agriculture in the 'advanced countries' during the second half of the nineteenth century brought inescapable consequences in India as in other export-oriented regions of traditional agriculture: devaluation, impoverishment, and vulnerability to famine followed the dis-integration

of previously prosperous industries. While this proto-underdevelopment was excused by notions of inherent racial difference, it was also unsustainable. Government responded with infrastructures of transport and irrigation, but these reinforced dependency. Education remained organised to provide compliant supporting functionaries and instil the cultural values of British elites.

The fight to realise uncommon ground Where education impinged on making, however, things could be different and uncommon ground was discovered: at the Madras School of Art, students designed, produced and sold aluminium cookware which competed very effectively with German imports. At Sibpur College in East Bengal, a recent graduate in chemistry from Bradford hugely improved the colourfastness of available textile dyestuffs. Such achievements were decried in the higher ranks of Government. Schools of art were told not to engage in commerce or offer their wares for sale, as this would break the taboo separating the proper sphere of government from that of trade. Further, while technical *training* might have a use, *education* must have a higher purpose than material transformation. Educational strategy in India was thus to be kept apart from both enterprise and scientific and technological development even while rivalry with Germany was prompting a more concerted 'quest for national efficiency' in Britain.

At the turn of the century, J. N. Tata, the foremost Indian industrial entrepreneur, challenged this lack of engagement by offering an endowment to establish a higher institute of applied science. Though Government sought to channel the initiative towards study of the landscape, culture and society of the subcontinent, Tata insisted on an institute of research and engineering to benefit India, and William Ramsay, Professor of Chemistry at University College London, was engaged as a consultant. Ramsay had received his professional formation in the actively interventionist university culture of the Rhineland, where doctoral research was not only applied to industrial problems but led to the formation of new companies. He rapidly fleshed out Tata's proposal into a set of four small teams of professors and research students in applied

physics, chemistry and biology, whose combined expertise could be applied to a wide range of development opportunities in the Indian context.

While Tata welcomed Ramsay's advice, officials were horrified: unfamiliar with science and unsympathetic to industrialisation, they could find little in Ramsay's plan which corresponded with their notions of 'higher' education. Further, they doubted the ability of English-educated Indians to engage rigorously with practical subjects and the willingness of internationally-respected scientists and engineers to come to India to engage with them. But most of all they hated the idea that research in the Institute would produce commercialisable benefit. That was an affront both to the nobility of 'liberal education' and to the probity of public service. If Tata and Ramsay had found uncommon ground in India, the Government was not on it.

If Ramsay was an embarrassment to Government, he was important enough not to be dismissed out of hand. His plan was allowed to go forward in dismembered form, with compartments separating professors from students and both from outside interests, research from exploitation and the disciplines from each other, conforming to officials' understanding of 'normal' University practice. Tata's protests were countered with the suggestion that he had been trying to configure his benefaction to his benefit. Nevertheless, seven years after Tata's death in 1904 the Indian Institute of Science opened its doors in Bangalore to enrol students in General and Applied Chemistry and Electrotechnology - two of the areas recommended by Ramsay.

Despite the difficulties of its formation, the Institute came to embody some key qualities sought by Tata and Ramsay:

'The Institute has been able to make many significant contributions primarily because of a certain uniqueness in its character. It is neither a National Laboratory which concentrates solely on research and applied work, nor a conventional University which concerns itself mainly with teaching.

But the Institute is concerned with research in frontier areas and education in current technologically important areas. This is also the first Institute in the country to introduce innovative Integrated Ph D Programmes in Biological, Chemical and Physical Sciences for science graduates.'

Boundary dynamics in a knowledge economy The story of the Tata Institute reminds us that the weight of circumstance which establish the boundaries of common ground is not guarantee of its sustainability. It further highlights the difficulties which may be encountered in engaging stakeholders on uncommon ground even when a viable experiments are taking place and a vision which articulates them has been set out by those with the most relevant experience. The Tata story also holds interest as one of the key formative moments of the new culture of science-based industry, today generalised as the 'knowledge economy.' In the last century the elaboration of knowledge in academic disciplines and the way in which this formalisation of knowledge has been paralleled in corporate and public administration has drawn and redrawn the boundaries between common and uncommon ground.

A prime site for the emergence of uncommon ground in the knowledge economy is crisis resulting from the unintended consequences of bringing new knowledges, and products based on them, together. A good example is the 'tyre failure crisis' of the early 1920s.⁶ When motorists began to drive outside urban areas and at speeds exceeding 50 km per hour, accidents involving tyre failure started to rise sharply. As there was no systematic collection or analysis of relevant data, it took a while for this fact to become apparent. Bad news might feed back to the company from salesmen and distributors, but who was to collect it or determine that there was a quality control or design problem? Once this was identified, one could look for the solution in the materials used in tyre construction, tyre design and manufacture, the wheel and the tyre-wheel interface, or the design of automotive suspension, braking and propulsion

systems. Each of these components and assemblies could then be re-evaluated, but the tyre manufacturers concentrated on the materials used in tyre construction and how they were combined to achieve the desired balance of qualities. Different branches of applied science were implicated in tyre manufacture, as well as practical knowledge about how to manipulate the properties of what were for the most part still naturally sourced and selected materials. As in the case of 18th-century iron smelting, pragmatic solutions were sought with the use of unevenly codified understanding, leading to trial and error approaches before engineering could be put on a proper scientific footing. The problem for the tyre companies, and the automobile manufacturers, was how to avoid the trial and error being conducted by the end-users of their products on the road. Until this crisis, tyres and suspension systems had been designed and tested separately, whereas the critical consideration was how they operated together dynamically.

Simulating conditions of use required not only more complex engineering of test rigs, but unprecedented collaboration within and between automotive and tyre manufacturing companies not only in simulation, but in protocols for collecting and analysing relevant data. In this respect the ‘tyre failure crisis’ not only brought a range of newly defined functional specialisms together on uncommon ground, but required them to each redefine what they would subsequently normally do, in scientific research as much as in engineering, or corporate administration. Following intensive efforts over several years, substantial common ground was established among the parties and the ‘new frontiers’ of collaborative endeavour shifted elsewhere.

In retrospect, or from the outside, the structure of the elaborate knowledges and institutions of the twentieth century appears as clearly articulated, if complex, common ground. However, in any inspection of the history of a field of enquiry or a corporation it soon becomes clear that key episodes that determine new directions and phases of development take place on what is at the time uncommon ground. This is not fortuitous but a necessary consequence of the dominant characteristics of the period, which may render routinised practices suddenly unsustainable.

Occasions of innovation

The automotive and aviation industries, paradigmatic purveyors of twentieth-century transport were premised on more than half a century of experimental work with machine tools for the manufacture of small mechanism from standardised components. But manufacturing new internal combustion engine and transmission system components to sufficient degrees of precision, robustness and cheapness required both specialist adaptation of certain tool types – particularly in grinding and milling – and the a more general re-engineering of existing tool designs for the robustness necessary to control the forces generated by larger scale work with harder materials, deeper cuts and higher speeds while maintaining high degrees of uniform precision. But these needs evolved somewhat apart from the established centres and pre-occupations of machine tool design.

One of the first to fully appreciate what later became evident was a young mechanic named James Hartness, whose early work experience had included time with early motor manufacturers in the American Midwest and local toolmakers who were trying to fulfil their requirements.^{7,8} Still in his mid-twenties but seeking advancement, Hartness presented himself as candidate to become the chief engineer of the Jones and Lamson Machine Company in Vermont, a firm which half a century earlier had provided several of the key innovations in the manufacture of small arms with interchangeable parts but which had reverted to producing a generic catalogue of machine tool types. In one of the most improbable acts of mutual recognition recorded, Hartness won the appointment, scrapped the entire existing catalogue and invested the entire resources of the small company in producing improbably massive and configurable flat-bed turret lathe to his own patented but unproven design, with the support of the farmers who then owned the company against the wisdom and will of virtually all its staff.

Doubts were resolved when the new model was an instant success, generating an undreamt of volume of exclusive business. Twenty-five years later Jones & Lamson had generated a fistful of spin-off companies each specialising in a particular type of machine tool

relevant to the new industrial complex, raising a town of 10,000 people to the top list of strategic targets. Hartness had become not only a millionaire but a US Senator and a best selling author whose views were sought on the re-engineering of absolutely anything. Most significantly, his venture unto uncommon ground with a bunch of farmers had changed the shape of the machine tool industry and accelerated the emergence of mass production in the automotive and aviation industries.

The same industry also saw dramatically different types of departure from common ground in this period. For Brown & Sharpe, one of the largest and best-known American toolmakers with a diverse range of specialist products, the challenge presented by the new age was not finding an appropriate specialisation but how to communicate the recognisable character of the company’s products to a more widely distributed and less familiar set of customers. The path-changing innovation came from another type of young man, a new ‘graduate engineer’ named Luther Burlingame whose paper-based skills were employed in charge of the drawing office. The crucial piece of uncommon ground he imagined into existence was one between the toolmakers each embedded in their specialism and the company’s salesmen, with their stories about the difficulties of selling to clients they didn’t know and who had little idea about the distinctive qualities of different machine tools.

The path-changing innovation was the development of a distinctive design language for Brown and Sharpe machine tools, informed by an extensive comparative study of competitors’ designs and embodied in a corporate house-style manual. With this method Burlingame was able to take a different approach to the needs of the new centres of mass production emerging in the American Midwest. Recognising the new pre-occupation with massiveness and stability, Burlingame’s house style set out design details to give Browne & Sharpe tools a more robust appearance, while equally insisting on qualities of finish which would connote precision. Burlingame’s new direction was also appropriate to the new circumstances and extremely profitable for Browne & Sharpe; while he may not have become a Senator

or a guru, he soon became Chief Superintendant of the company, in charge of all manufacturing. This was a dramatic testimony to the new power of systems of representation in both production and marketing. In parallel with that of Behrens at AEG, the success of Burlingame’s work at Browne & Sharpe signalled the importance of classic issues in the emerging field of industrial design – house style and product semantics – even in technology markets.

Moments of continuity and departure

These visits to episodes of uncommon ground a century ago present some interesting comparisons with the contemporary episodes described elsewhere in this volume.

First, our case studies circa 1900 are already recognisably in a knowledge economy. I mean by this a world where practice is systematised and has a legitimate representation, where know-how is formalised into a publicly stateable know-what. Knowledges may have become larger in number, more elaborate and configured somewhat differently, but the emergence and re-emergence of uncommon ground still largely takes place on the knowledge boundaries. Indeed, in historical perspective moments of uncommon ground are indispensable moments in the growth and reconfiguration of bodies of knowledge and routinised practices – where the tectonic plates collide.

We can recognise also some still current phenomena in where uncommon ground emerges and develops. The arrangement of surfaces reflecting the array of modern institutions and their structures is present: the mediation between producers and consumers, the powerfully disruptive indirect effects of new technologies, the reflection of eventualities of use alongside production and distribution in the division of labour of large organisations and the conflicted reflection of these complexities in public bodies. Our case studies remind us that significant uncommon ground can arise within as well as between institutions and knowledge domains, indeed as they become larger and more complex this is more likely to be the case.

Comparing uncommon ground experiences, we can see tropes which are institutionally formed, such as rationalisation or response to crisis, and develop through the interaction of several players, but also tropes which centre on partnership complementarity and have perceived opportunity or innovative possibility as a premise. These may come to substantially to focus in the imagination of one individual, which then stimulates positive or negative response or develop out of exploratory dialogue. Our case studies highlight the importance of people who are able to act as cultural intermediaries because their formation, or role, bridges different sorts of situation, experience or knowledge and permits opportune transposition or abstraction.

As our knowledge-based culture has become more self-aware the significance of cultural intermediaries has become better appreciated and even institution-alised as a role. Alongside the growing number of people who carry out this role as a profession, it has become normal for large organisation to employ intermediaries grounded in their strategic objectives. In some countries, including the UK and the Netherlands, an infrastructure of state-supported intermediaries has emerged, for example in the ‘creative

industries.’ That part of contemporary art practice engaged as much in un-making as making is involved in similar work. The effects of such role elaboration on the larger picture of how uncommon ground comes to be defined are an important subject for investigation to which this book is a contribution.

While historical perspective does not allow us to predict the future sites of shapes of uncommon ground, it underlines points of continuity and departure in the present. We see continuity in the close interrelationship in the ‘knowledge economy’, between knowledge as culture on the one hand and systematised practice in the economy on the other. With the elaboration of information and representation technologies, systematisation efforts are not only focussed on design for the production and sale of complex artefacts but also and especially on service design and delivery. Successful service design requires a more complex cultivation of uncommon ground with the user than the manipulation of the estimable qualities of objects in the consumer imagination pursued (to the nth degree) through the twentieth century. The agency of the user is now the point of departure for constructions of value.

1. For a discussion of the dynamics of engagement, see Jean-Claude Kauffman (1995) *Dirty Linen*, Middlesex University Press, (2002) *Premier matin*; comment naître un histoire d’amour, Armand Colin and (2005) *L’invention de soi*, Armand Colin

2. Elaine Scarry (1985) *The Body in Pain: The Making and Unmaking of the World*, Oxford University Press, 1985

3. For example, see J. R. Harris (1978) ‘Attempts to transfer English steel techniques to France in the eighteenth century’, In S. Marriner (ed.), *Business and Businessmen: Studies In Business, Economic and Accounting History*. Liverpool University Press

4. The following discussion draws on Tim Putnam (1984) ‘The Origins of

Industrial Policy in British India’, Proceedings of the Fifth International Conference on the Conservation of the Industrial Heritage, Boston

5. <http://www.iisc.ernet.in/>

6. For a discussion of scientific tyre design at Dunlop, see the PhD recently completed by George Woolaghan at University of the Arts London

7. Tim Putnam (1999) ‘Design Theory and Engineering Education in America’s Progressive Era’, *Design and Engineering: two cultures?* University of Huddersfield

8. Tim Putnam (1988) ‘The Theory of Machine Design in the Second Industrial Age’, *Journal of Design History*

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Design and the Growth of Knowledge¹

1. On 10 November 2006 John Thackara spoke at a symposium organised by Delft Technical University. For more information see: <http://studiolab.io.tudelft.nl/symposium/>. His talk has been adapted for ‘Uncommon Ground’. The full text as he presented it can be found at: Thackara, J. (2006) *Afterword*. In: van der Lugt, R, & Stappers, P.J. *Design and the Growth of Knowledge*. Delft: StudioLab Press. pp. 48-49

By John Thackara

‘Avoidance of difficulty or unpleasantness. Disavowal of extreme situations. Retreat into distraction. These appear to be the hallmarks of the fast-encroaching New Dark Ages’. These alarming words were not written about the state of tabloid newspapers. They’re a comment by Anne Marie Willis, editor of Design Philosophy Papers, on the state of design research.

Having tried, via a mailing list, to engage 1,000 PhD design researchers in environmental issues, all that Willis encountered was ‘a small flicker of debate’. Her conclusion: ‘There seems to be an inverse relation between extremity of conditions, and our preparedness to contemplate them’.

I don’t share all of Willis’s disillusion. In recent times I have been heartened by a lively debate opening up not just about *how* we do design research but, more importantly, *why* we do it – and to what ends.

Willis is right, nonetheless, that a lot design research, as formally practised in academic institutions, is isolated from where the action is. Paul Hawken reckons that over *one million* organisations, populated by over 100 million people, are engaged right now in positive activity designed to address climate and other environmental issues. ‘Collectively, this constitutes the

single biggest movement on earth, says Paul. But this worldwide 'movement of movements' flies under the radar of policy makers, and most journalists. And most design research.

In 2005, a new product was launched every three-and-a-half minutes. A lot of design research looks for ways that the flow of novelty can be increased. Researchers talk endlessly about processes to identify 'unspoken needs' and the invention and generation of ideas, images, performances, artefacts. I am not aware of any design research that questions whether we should fill up the world with new products at all.

The one million grass roots organisations Hawken refers to are just one part of a radically transforming situation. Many big organisations are re-thinking fundamental principles of their business, too. The consequences of climate change for the economy, and the very existence of their business, has moved for many multinationals from the realm of 'future scenarios' to be a real and present danger.

I am not aware of any design research that questions whether we should fill up the world with new products at all.

Let me give you some examples I've heard about in recent times. I heard that one of the world's top five logistics and parcel delivery companies has concluded that sustainability is *the* key driver of the company's future. I was told that one of the world's largest shipping ports by volume has decided it must render its operations carbon neutral within a decade. (How, I have no idea. But they're deadly serious). A major European hub airport, I was told, is studying how it might prosper as an airport if air travel ceases to be an important part of its business.

Indeed whole countries are gearing up for massive, and actual, transformational change. Sweden, for example, has made it national objective to be independent of oil within a decade. Switzerland has set a target of becoming a '2000-Watt society'. That's *one third* of the 6000 Watts of energy consumed by each of its citizens today on food, goods, heating and cooling buildings, mobility and so on.

The most dramatic shift, for me, is emerging in Britain – until now, a byword for of wasteful consumerism fuelled by cheap credit and property speculation. The recent publication of the *Stern Review Of Climate Change Economics* – by a former World Bank chief economist – marks a step change in government responses.

It's not just that Stern's conclusions correspond broadly to what environmentalists have been saying for fifteen years. The fact that the report was commissioned by The Treasury, which controls the nation's taxation and money – is also key. Money is at stake: Something *must* be done!

What's really key about Stern is that it paves the way for so-called 'external' costs to be counted properly for the first time. Economists describe as 'external' costs things like energy, water, minerals, the biosphere as a whole – that, until now, have not been properly counted as part of the game. We used energy to exploit resources – but did not pay the full price of the energy or the resources. One of the few things a government can do is use fiscal measures to make these so-called 'external' costs *internal* costs, payable by the producer. This is will happen, progressively faster, as cultural and political pressure for action builds.

Matter and energy flowing through the economic system will have to be paid for at full price – rather than taken for granted as a freebie. The Stern Review provides an economic justification for dramatic changes to the ways we live. Taxes, incentives and regulations will drive demand for sustainable solutions, which will have to be designed.

Matter and energy flowing through the economic system will have to be paid for full price.

There's a truly gigantic design opportunity here. We are not talking about a few 'green' consumer products. The unsustainability of industrial society is due only in part to individual product choice, and personal behaviour. Buying hemp tea shirts is not the answer. What we have to do is transform material, energy and resource flows that, right now, are killing us. To do that, we have to re-design the structures, institutions and processes that drive the economy along.

A new kind of design practice is needed. In this new design practice, boundaries between infrastructure, content, equipment, software, products, services, space, and place, are blurred. Compared to physical products, or buildings, sustainable infrastructures are immaterial. They are adaptive in time and space.

The design challenge is a tough one. I am optimistic we can rise to it, but traditional design research will have to change fundamentally if it is to play a role.

First, because the new design practice is more about discovery, than blue sky invention. Many of the answers we need *already exist*. We need to

become global hunter-gatherers of models, processes, and ways of living that have been learned by other societies, over time. We have to find those examples. Adapt them. Recombine them.

Just as biomimicry learns from millions of years of natural evolution, we can adapt lessons to our present, ultra-modern needs. A lot of people already know how to live more lightly than we do. Hundreds of millions of poor people practise advanced resource efficiency *every day of their lives*. That's because they are too poor to waste resources like we rich folk do. Design researchers and students should relocate en masse to favelas and slums. These informal economies are sites of intense social and business innovation. When designers discover positive things about a situation – that local people no longer notice, or value – well, that's one less place, or thing, that needs to be designed.

A second key feature of the new design practise: it is less about control, more about the *devolution* of power. A good test is whether a design proposal will enable people to retain control over their own territory and resources.

A third feature of the new design practice: it does not have to think Big, or act Big, to be effective. On the contrary: we have learned about the behaviour of complex systems that *small is not small*. Small design actions can have big consequences, and these can be positive. If someone builds a bus stop, in an urban slum, a vibrant community can sprout and grow around it. Such is the power of small interventions into complex urban situations. (Read *Small Change* by Nabeel Hamdi for more inspiring examples of the power of designing small).

Item four: The new design practise looks for ways to *replace physical resources with information*. The information part is knowing where something you need to use, is. If you can locate a thing, and access it easily, you don't have to own it. Think of cars. Most of them are used less than 5% of the time. And guess what: 600 cities now have carsharing schemes.

The same goes for buildings. In a light and sustainable economy we will share resources – such as time, skill, software, spaces or food – using networked communications.

We don't have to design sharing systems from scratch. Many already exist. Local systems of barter and non-monetary exchange, such as Jogjami, have existed in India for at least 500 years. A cooperative distribution system called Angadia, or 'many little fingers', enables people to send goods over sometimes vast distances without paying. They just need to be internet enabled.

The fifth and hardest aspect to master of the new design practice is *whole systems thinking*. The best example I heard recently is from an entrepreneur called Paul Polak, who helps people in developing countries develop more effective water distribution systems. Paul reckons the design and technology of a device, such as a pump, or sprinkler system, is not much more than ten percent of the complete solution. The other ninety percent involves distribution, training, maintenance and service arrangements, partnership and business models. These, too, have to be co-designed.

Six: the new design practise as a filter. We're swamped by innovation, but starved of meaning. We are confronted by such a cacophony of contradictory ideas and solutions, it's immobilising. Think, for example, of buildings and energy. Passionate advocates insist of different technologies that each is the ideal solution: Wind turbines, nanogel insulation, hydrogen fuel cells, solar panels, geothermal, wood-chip boilers.

As many organisations offer advice, as there are technology ideas to choose from. In the North East of England, for example, when we set out to reduce the carbon footprint of one single street (in *Designs of the time*) we encountered more than 20 organisations set up to help people save energy.

If I reflect on success factors for design research and the treatment of design knowledge, three stand out for me. First, locate at least part of the project in a real-world context. Over the years, I have not encountered a convincing example of purely theoretical design research.

Second, design research should involve the innovative *re-combination* of actors among the worlds of science, government, business, and education.

Third, if the results (and value) of design research are to be shared effectively, communication and dissemination methods need to be designed (and budgeted) in at the start. Stores of knowledge, put together by academic researchers, may be less useful in this context (remembering the recent failures of knowledge management) than *flows* of knowledge.

In the end, it is not a matter of either/or – academic vs. worldly research. We need both-and. Systematic collaboration between academics and practitioners implies institutional and attitudinal transformation. This transformation process needs itself to be designed.

Andrew Bullen is Director of the Media Guild, a new cross-disciplinary incubator environment and centre of innovation for the creative media industries in Amsterdam. Immediately prior to this appointment, Andrew was Head of Studies at the Media Lab, Amsterdam, a cross-disciplinary educational initiative for the media sector. His past work combines the creative media industry, arts and education. He held directorships and senior management positions with Europe Online, Luxembourg and T-Online, Darmstadt in addition to several years as an independent media consultant for large business corporations in Southern France, and for EU digital media and educational programmes. www.mediagilde.nl



Media Guild, 'Pakhuis De Zwijger'
Artist Impression by Hans Kuiper

Redefining the Guild

Andrew Bullen interviewed by Jane Szita

Guild n. (also ***gild***). 1. an association of people for mutual aid or the pursuit of a common goal. 2. a medieval association of craftsmen or merchants. (Oxford English Dictionary)

Although he featured in the original programme, Andrew Bullen, director of the new Amsterdam-based Media Guild (known as *Mediagilde* in Dutch) had a good reason for not speaking at the Uncommon Ground event: his own fledgling institution opened its doors on the same day. Since then, partnerships have been forged, masters have been recruited, and the first apprentices have been arriving, as the Media Guild embarks on a mission to bridge the uncommon ground between creative concepts and active entrepreneurship – by reviving and adapting an ancient form of knowledge exchange for the neglected pre-seed phase of innovation in the modern creative industries.

According to the dictionary, the word 'guild' may have entered the English language via medieval Dutch. If that's so, then Amsterdam's new, government-funded Media Guild may have hit on a model particularly appropriate for the Netherlands, with its pioneering revival of old guild principles, reinterpreted and applied to today's creative economy.

'The guild was – and is – basically an organisation for the exchange of knowledge and experience, in a practical and non-academic way,' says Andrew Bullen, a British-born manager of creative high-tech companies with two decades' experience in France, Germany and the Netherlands.

'The Media Guild's role is as an innovation platform. Our goal is to generate a creative ecosystem for the organic growth of innovation. That means we're an incubator, but it's important to stress that we are a *pre-seed* incubator. We're not operating at start-up level, and that's one of the things that makes us different from most media labs. Our apprentices, the people we take on, have a big idea, which we then help them develop into a workable start-up concept. We do this by putting them and their idea into an optimum environment. It's all about learning along with a master of your trade, and then working in a small unit. We're very much based on a vision of the old guild system – but then multi-disciplinary and multi-cultural.'

Pioneering revival of old guild principles, reinterpreted and applied to today's creative economy.

In his time working for Amsterdam Media Lab, Bullen says he became acutely aware of the need for a new form of post-education education. 'So many ideas from new graduates are simply lost,' he says. 'There is a great shortage of small-scale media funding, and often the people concerned – like the ones who are starting to come here – are strong on conceptual thinking, but short on entrepreneurial skills.' The Media Guild focuses firmly on the exchange of knowledge and experience, rather than theory. 'We are not working at the degree school level,' says Bullen. 'Our apprentices have done that, and now they need to develop both individually, and as team players. It's self-evident today that creativity comes from small, flexible organisations, teams, and teamworking skills. Much can be learned in corporations, but it's all along corporate lines. Large corporate companies – with all due respect to them – are not always the best places for generating creativity.'

Knowledge and service exchange

Nevertheless, corporations are rich sources of practical know-how and business skills, not to mention funding, and the Media Guild is tapping into these through a range of industrial partners, numbering some household names: Apple, Cisco Systems, Dell, and ABN Amro among them. 'We're working with our partners on an exchange of value basis,' says Andrew Bullen. 'We can supply services such as rapid prototyping and creating innovation labs for our partners. This interchange is enabling us to build a strategic knowledge network.' The corporate partners join a number of educational institutional partners, both national and international, including the University of Amsterdam, Banff New Media Institute (Canada), and Media Lab Amsterdam. Waag Society, whose director Marleen Stikker was the original instigator of the Media Guild, is also an important strategic knowledge partner. 'Then we have a number of masters of various trades, who come in to talk and mentor our apprentices,' adds Bullen. 'We can't

afford to pay everyone, so it's all running very much on the basis of knowledge and service exchange.'

While the guild is currently at the start of three years of government funding, it has its sights set on eventual self-sufficiency, partly through service revenues. It currently offers three types of service: innovation workshops (intensive, interdisciplinary workshops, lasting several days, aimed at developing innovative ideas); rapid prototyping (taking a tentative idea to full demo stage within a week); creativity boosts (half-day workshops on new developments and their application); and screening and scouting (selecting suitable talent for clients who so far include the University of Amsterdam). Other sources of income are expected to consist of renting out guild facilities, 'a small percentage of the revenues of our successes', and, Bullen hopes, a proportion of money from international projects and funding. 'Everyone who is an apprentice here is living in the Netherlands, as we're government sponsored,' he says. 'But international orientation is very important, and it's something we can build on. We are doing workshops at Milia in Cannes, for example, and I hope that institutes from other countries will come to do projects here.'

'It's all about learning along with a master of your trade, and then working in a small unit. We're very much based on a vision of the old guild system – but then multi-disciplinary and multi-cultural.'

Cross cultural exchanges amount to another fruitful kind of uncommon ground, Bullen believes: 'I do tend to disagree with Richard Florida on this one, I think countries have radically different approaches to innovation, and that the concept of innovation being different across borders can be massively difficult for people to grasp. At our Innovation Day, we asked media labs from different countries whether there is a methodology behind innovation; and their contributions indicated that the labs all looked at being creative differently. If you look at innovation in the Netherlands, it seems the Dutch are good at producing new things and patenting them, but they are relatively poor at applying them. I think the Media Guild needs to help develop that form of entrepreneurialism that's about taking things out of research and applying them. But there's this huge reticence when it comes to getting people from research departments to work with developers. There's a gulf between corporate culture and other cultures.'

Sustainable innovation

The Media Guild will eventually count 150 apprentices, with 30 qualifying for a workspace in the guild itself. So far, 28 apprentices have been selected

from over 100 applications, 11 with a space in the guild's own docklands warehouse offices, the others externally located (there is space for 30, but only 11 have been selected as internal apprentices as yet): 'They come in to use our facilities, for our programme, and for networking,' says Bullen. The individual apprentices are encouraged to work in small teams, and often join the programme as part of a mini-group with a concept. One of the Media Guild's first batch of projects under development is BrainBay, a site for the harvesting of new commercial product ideas by consumers themselves. The concept was thought up by two apprentices, one with a creative background, the other with marketing experience. The Media Guild helped them to link up with a back-end computer programmer to develop their initial idea. 'And now we're looking out for someone with more of a business background to complete the team,' says Bullen. 'The main idea is that we'll get more value by creating multi-disciplinary teams,' he adds. 'A big part of what we do is about putting teams together.'

The apprentice selection process targets originality. 'We're looking for the concepts that will create really new value in terms of media or content,' says Bullen. 'It's not enough for an idea to have commercial potential alone. Yes, it must be a good bet in a business sense, but the object is to create sustainable innovation. We're supported by government funding, so we have a responsibility to deliver innovative projects.' Accordingly, he reckons that the guild's most difficult role is that of the screening and scouting officer, who is responsible for sorting the genuinely original from the merely viable. Bullen believes that the variety of applicants is an encouraging sign that the guild is heading into the right territory: 'We've had people applying who have been doing completely different jobs, some from business, some from the music industry. Some come directly from education, but most have worked. The age range is between 20 and 52. Most of them have been working on their ideas for a while. We're looking for the big idea that they need to commit to.' Apprentices may well have already experienced a degree of success, such as the software development group, Made by Sofa, which is already making a name for itself with a form of retail soft-ware for the Mac, and now occupies one of the guild's first available workspaces.

'Made by Sofa are developing new interfaces for retail software, which sounds ordinary, but is actually quite revolutionary,' says Bullen. 'Then we have another group of two people working on a new application for video in augmented reality. Another idea involves developing a piece of software that allows anybody to start a community platform with easy to use, visual interfaces. These ideas were chosen because we think they fulfill our criteria. We could fill all our apprentice vacancies tomorrow, but we are deliberately building up our network slowly, because we want the right projects and the right people involved.'

Pushing incubator boundaries

In their one-year apprenticeship, apprentices can expect a space (if they are one of the lucky 30) in the Media Guild's warehouse offices in Amsterdam's newly fashionable Eastern docklands, a wide-ranging programme, mentoring (from two in-house team coaches and a programme manager who acts as a third mentor, plus a number of external masters), and peer support. As yet, they don't receive any financial support. 'We are actively looking for pre-seed funding,' says Bullen. 'But as of now, some of our apprentices have a grant or are working. While we can't offer them money, our network helps them to find paid freelance jobs – doing rapid prototyping, for example.' The guild allows workspaces to be used for apprentices' own paying work outside normal working hours.

'The programme is an important part of our offering,' stresses Bullen. 'We prefer every apprentice to follow at least the central pillars of it. The main themes are creative tools, multidisciplinary collaboration, entrepreneurialism in the knowledge economy, and business and organisation. In the creative tools category, we are focusing on ways to help our apprentices develop a vision, by looking at future scenario development, Socratic dialogue, and value ladders. The idea of looking at multidisciplinary collaboration is of course to explore all the various roles within a team, and how to leverage value from a network. With business and development, we're exploring all the practical nitty gritty, such as tax issues and intellectual property rights (IPR) – obviously, IPR is a serious challenge in situations where you have up to 30 people collaborating together. Naturally, the programme is also designed to improve apprentices' technical skills.' He points out that it is led by practising professionals, as well as academics.

All this indicates that the Media Guild is no run-of-the-mill incubator or media lab, argues Bullen. 'Our extensive programme is another thing that sets us apart from most incubators and media labs,' he says. 'Similarly, we have mentors to coach and accompany our apprentices on their journey, which is another of our distinguishing characteristics, and we are operating within both public and private spheres, and actively seeking to link the two. What's more, we are focused not on start-ups, but on the widely neglected pre-seed stage, which is vital to innovation. And if we do take a percentage of the profits of our eventual successes, that will be very small.' As the need to innovate in the creative industries calls for new approaches, the Media Guild is responding with a new form of practical education that pushes the boundaries of existing incubator practice. Not surprisingly, the initiative has attracted a lot of attention already, says Bullen: 'We're already talking to people in Istanbul to help them set up their own media guild. We're fairly unique right now; but perhaps we won't be for long.'



Entertaible. Multi-touch detects forty five fingers, photo by Philips

Gerard Hollemans. After his studies in Psychology Gerard Hollemans became a researcher at IPO Center for Research on User-System Interaction, a part of the Technical University Eindhoven. He then moved to the Nat.Lab. of Philips Research, Eindhoven, where he worked as Senior Scientist on user-system interaction research, initially mainly for consumer electronics products. He worked on the Entertaible project. After its successful presentation at the CES of 2006 in Las Vegas, he joined Philips' Lifestyle Incubator project Entertaible (a business activity to commercialize Entertaible) as Application Architect. One week a year he teaches Social Sciences Research Methodologies at the User-System Interaction postgraduate program of the Stan Ackermans Institute of the Technical University Eindhoven.

Willem-Jan Renger is a member of the faculty board of Art, Media & Technology, Utrecht School of the Arts. Until recently he was Dean of the Graduate School of Art, Media, Music & Technology, leading an UK validated MA programme in European Media (EMMA). He specializes in the design of education in design with an emphasis on the pedagogy of multidisciplinary collaboration and curriculum models.

Managing Creative Encounters –

A Team of Art Students Contributes to Research on a Radically New Gaming Platform

Gerard Hollemans and Willem-Jan Renger
interviewed by David Garcia

For the Uncommon Ground network, Gerard Hollemans, senior scientist of User System Interaction for Philips Research Laboratories, made a presentation about a collaboration between the *Utrecht School of the Arts* and the *Philips Research Labs*, in which a group of Master's students created a demonstration game for *Entertaible*, a tabletop electronic gaming platform, which was on the cusp of moving from the research phase into actual development. This summary is based on transcripts of interviews and discussions with two main references, Gerard Hollemans, the lead Philips researcher on *Entertaible* and Willem-Jan Renger, the director of studies at Utrecht School of the Art's Faculty of Art, Media and Technology. In the process of examining what actually happened, these discussions touch on a range of issues from the problems of managing the cultural differences between art and industry, to the challenge

of sustaining longer-term relationships between partners.

‘How do we help our students of interactive art and design get access to advanced technology? One answer is to team up with places like Philips Research Labs. This gives our students access to the latest from the research labs, tools and platforms that have not yet reached the marketplace. This will give the students a priceless edge later on in their field of work. So we say to them: ‘now go away and surprise us. Explore!’

Willem-Jan Renger, director of the Art, Media and Technology Master's Programme

‘We needed artists and designers who were also gamers themselves, people who wouldn’t come to ask us questions about what we want, but that come with ideas. That is where an art school is often better than a commercial company. A company often has a tendency to say, “tell us what to do”: That was not what we were after.’

Gerard Hollemans, Philips Research, Researcher and Team Coordinator of Entertaible

Introduction

Over 2005 and 2006 a group of art and design students from the Utrecht School of the Arts (HKU) worked with Philips Research Labs to create a demonstrator game to show the potential of Entertaible, a new tabletop gaming platform prototyped by Philips Research Labs. Entertaible marries traditional multi-player board and computer games in a uniquely simple and intuitive way. It comprises a 32-inch horizontal LCD and touch screen-based multi-object position detection. This technology allows the players to engage in electronic games which combine the features of computer gaming, such as dynamic playing fields and gaming levels, with the social interaction and tangible playing pieces, such as the pawns and dice, associated with traditional board games. This article re-visits some of the key moments and issues that arose in the collaboration between two very different cultures. First a little about the partners.

About The Faculty of Art Media and Technology – Utrecht School of the Arts
Though formally part of the Utrecht School of the Arts, the Faculty of Art, Media and Technology is located in Hilversum, halfway between Amsterdam and Utrecht. The faculty was founded in 1989 by the educator Ad Wisman, whose principle of a ‘cybernetic serendipity’, using technology to make joyful discoveries by accident, remains influential.

From the beginning the new Faculty was separated from the main art school. This separation has spawned a distinctive atmosphere with little of the cultural baggage that accompanies a traditional art school.

The building in which the faculty is housed is straightforwardly corporate and the ethos is pragmatic, with a high value placed on the ‘employability’ of students. But for all its pragmatism it still retains the exploratory spirit of an art school and the students in the Master’s programme have a high degree of autonomy.

The spaces in which final year students practice have evolved to reflect the course values of maximizing interchange. Current head of the faculty, Willem-Jan Renger often refers to a principle of ‘nearness’ in guiding decision making. This principle has led to an emphasis on creating interlinked project spaces accessible to students on a 24/7 basis. The work-spaces are placed around large social spaces with couches and coffee areas in which anyone in the final year can mix, mingle, exchange ideas and stories about how one another’s projects are progressing. Renger, describes how: *‘we design the learning process like you would design a game, a process of orchestrating and monitoring student learning behaviour with real time interventions where needed.’* Or as David Morgan, a graduate in 2006 stated: *‘most of what you learn is from each other and you really stimulate each other, people are interested in one another’s projects and having a sense of what others are going to deliver. You end up with not just the knowledge gathered from your own project but from all or many other projects being developed. This can go quite deep. On many projects you know what is going on and what choices have been made and why.’*

About Philips Research Labs
Philips Research Labs is situated at the High Tech Campus, a vast campus style environment in Eindhoven, the roots of Philips in the Netherlands, although Philips HQ is in Amsterdam these days. The Research Lab embodies the clear distinction made by Philips between research and development. Research and the work of the Lab covers the phase of bringing a concept to a point of turning it into a commercial product. And the steps after that point are called development. The lab’s function is to take a project to the stage where it is known what is to be done in principle, at which point the project is transferred to a development lab.

Despite this division between research and development the boundaries are kept porous, among other things through the mobility of the personnel who have been involved. Key researchers may follow and play a part in actually incubating the project. It is vital to recognise that in research there is a great deal of knowledge gained about interaction, which cannot be easily codified. As Hollemans says *‘I could write endless reports but this kind of knowledge cannot be fully captured in this way. That’s why the organisation sometimes says if this is going to be a business then you and other key people from the research phase have to join the next phase otherwise it’s never going to fly.’*

Beginnings

In 2005 a Philips researcher visited an exhibition of Master’s student work at the Faculty of Art, Media and Technology. She was impressed with what she saw and went back to Philips Research Lab and persuaded the project leader of Entertaible that the HKU students might have something valuable to offer to the project. Entertaible was at a critical stage: Although it was still a research project, the team at Philips had enough faith in what they had produced to be considering taking it to the next phase. But none of the team were themselves gamers or artists, what they needed was a group of artist/designers who were themselves young gamers and who might be able to create a demonstrator game (a demo) able to show the potential of the table. Once the Philips team had met Jeroen van Mastrigt (the faculty’s principal gaming researcher) and some students there was an immediate sense that collaboration would be fruitful. As Hollemans put it: *‘on questions of game design they really knew their topic, in some ways of course far better than we did’.*

The relationship started with a small investment and a calculated risk. On this basis a short-term contract was drawn up between Philips and the Utrecht School of the Arts. This was negotiated by Xchange, a department within Utrecht School of the Arts responsible for procurement of external projects and negotiating contracts. Like other projects in the Master’s programme the project had some basic constraints. Five students who combined programming, gaming and design

skills were expected to work exclusively on the project for a period of approximately three months. The students were guided by two teachers and visited the Philips lab on a bi-weekly basis. Once the brief was given and the project was underway the teachers played mainly an advisory and monitoring role, intervening only if things started to go wrong.

Contact

When the students joined the project the first fully functioning version of the table was in place, the multi-touch display was working – a vital point as the multi-touch capability is one of the key enabling technologies. It has a touch sensitive display that can tell who its user is, by discriminating the objects that they use. The first meeting was quite carefully calibrated, as experience had shown that once you show people the table it is hard to get their attention back.

The Philips team deliberately held the introductory meeting in a separate room from the room with the table. The goal was to state in general terms what Entertaible was about, to describe the objectives, what had been achieved up to that point, where the project was headed. And what the Philips team thought the students’ contribution might be, and how this contribution might fit in to the grand scheme of the project’s development. Only after a considerable discussion period were the students invited to see the Entertaible in action. As expected there was an immediate flood of questions: Can we do this? How is that possible? How should that work? This is great, but what can I actually do with it?

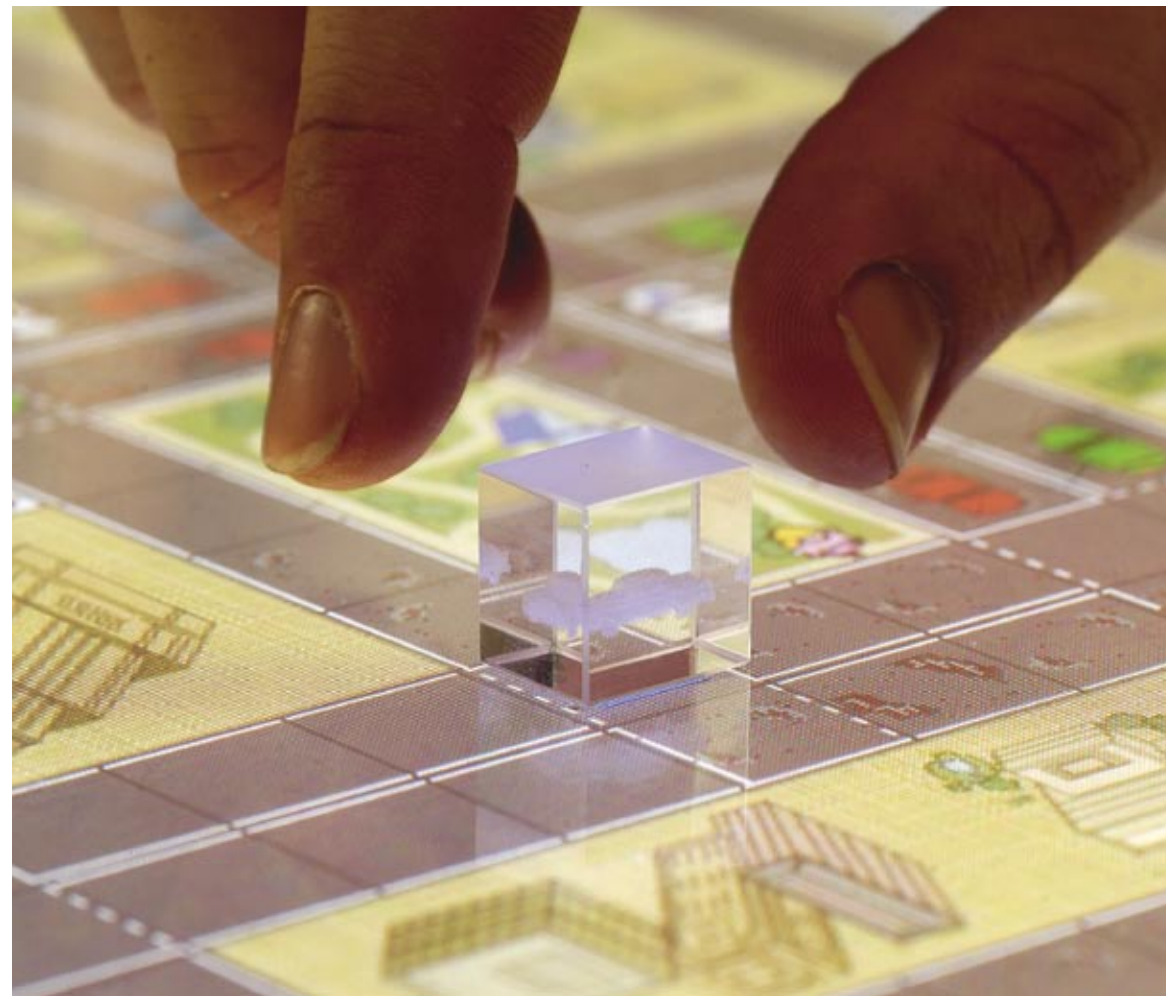
Hollemans was at pains to convey to the students that anyone working on a new technological platform always has to come to terms with the fact that however exciting, any technology always has limitations. *‘If you make something which opens up really new possibilities you tend to forget that there are still limitations’.* Throughout the months that followed the initial meeting in which the students developed their game, this point had to be continuously re-visited, as an important part of the students’ learning process was gradually coming to terms with the limits – not just the capabilities – of the new platform.



Entertaible,
photos by Philips



Gerard Hollemans & Willem-Jan Renger
Interviewed by David García



Example of an *Entertaible* pawn,
photo by Philips

Working off site

The Utrecht School of the Arts has a policy of asking its students wherever possible to work at the college to maximize the opportunities for cross-fertilization and sharing of expertise across disciplinary boundaries and projects. But this can bring difficulties, particularly in the case of Entertaible, where a team is designing a game for a platform on another site. Although important for the ethos of the school it increased the danger that the students would lose sight of the limitations of the technology as they would be relatively disconnected from the actual prototype. *'There a danger that they will dream up things that, though suggested by the new possibilities of the platform, were actually not possible'. Hollemans described how 'there were points during the process when I began to worry about their motivation. That they would work hard for two weeks and then come back only to discover that things they were enthusiastic about were just not possible. So from the outset I stressed that the students should be aware of what the limitations are and stay within the scope of those limitations.'*

Another related problem was the difficulty in tracking change in sufficient detail. Hollemans described how realising this had lead him to change the kinds of questions that he asked in his bi-weekly meetings with students. Rather than asking them to report on the status of the project, he asked them to report on the specific changes that had been made. *'If the meetings revolved around a status report it was sometimes difficult to see the delta. It's not that I don't believe they've been working hard, it's that I don't know what they'd been doing. However if instead they can indicate the differences that have occurred since the last meeting, for example if last time the graphics looked like this and this time they look like that then I can get a clear picture of whether things are going in the right direction. If you don't know the delta it's hard to steer.'* *'In the project meetings that we have with a new group of students I steer the meetings towards very clear questions regarding what the differences are between what was shown at the previous meeting. Because if I know the delta I can infer the status.'*

Engineers working with artists

Although Hollemans had plenty of experience of dealing with students and researchers from technical universities, this was his first experience of working with students from a school of art and design. Although he was generally enthusiastic about the working relationship the experience was very different. Hollemans conjectured that this was because *'their approach is more creative and less logically derived from something. This means that we frequently found ourselves operating more in the realm of opinion than arguments.'* *'Of course', he continued, 'I don't mean to suggest that art is without reasons and arguments but the emphasis is different'.*

Another important difference that Hollemans identified was that the art students in his view tended *'to care more about what they have made, or care in a particular kind of way'.* *'Whereas the more technical students tend to argue more about what they make and do. If there are decisions to be made they come up with arguments. I found when dealing with art students that it seems to be almost a personal thing. Which makes me as a manager with my particular background hesitant to talk about certain areas. When it is a matter of aesthetics, I felt I could hurt somebody's feelings really badly if I brought it in the wrong way. And sometimes if you comment on the project or on the proposal then sometimes you feel the tension in the team building, it's like it's their baby. And I have some ideas about where it should go and it's not their idea and it's hard for them to swallow sometimes. It is a sentiment that I haven't experienced in other contexts before.'*

Imbalances of power

There is a tendency to assume that in a project where a small faculty of an art school works with a giant multi-national that the imbalance will be too great. But in terms of what actually happened the opposite was the case; the sensitivities and culture of the students were respected (perhaps even too much) by the Philips team. The fact that Hollemans and his team took the risk of standing on uncommon ground can be seen in the fact that they allowed a number of decisions to be taken that the Philips team were not

really happy with. A key example was the graphic concept the students proposed for their game Ant Colonies. The concept proposed by the students was that the images should look like embroidery. This was an aesthetic choice that some of the Philips team did not like. But the objections were not only aesthetic. Although these graphics gave the game a warm, touchable feeling, the Philips team was also concerned that the result might make it appear as though the screen had poor resolution. In the end some of these fears have been borne out. If a user looks carefully it is clear that the embroidery is carefully made and shows a rich variety of tone and texture, but at a quick glance it can indeed be mistaken for a low-resolution screen. This has been substantiated by the fact that there were a number of critical comments from a group who were shown a demo of the game by the Philips team. However, the final conclusion of Philips was that although the problem did show up it was not with enough frequency to mean that the project could not go ahead. The degree of freedom allowed by Philips is in part attributable to the fact that the project is still in the research phase. But there is more to it: as Hollemans pointed out: *'We recognize that as artists they invest something of themselves in there and if you want to keep people motivated you shouldn't wipe everything off the table that is not our choice, particularly when it comes to design and aesthetics'.*

Different concepts of research

A significant difference between the cultures lies in divergent conceptions of research. The Master's programme at the Faculty of Art, Media and Technology likes to think that there is a research component to the institution, that its faculty members (within the context of a recently established 'lector programme') along with the students in the Master's programmes are doing more than creating competent industry professionals. A key part of the institute's strategic momentum rests on its belief (supported by alumni achievement) that it is enabling a significant number of students each year to become 'reflective practitioners' capable of innovation, of breaking open new conceptual and aesthetic territories. But when asked whether he thought it would be helpful to frame

research questions alongside the assignments Philips was setting, Hollemans was of the opinion that this would run against the grain of the culture of the students.

Hollemans (who is himself a significant contributor of research papers to peer reviewed journals and scientific conferences) felt that however creative the students were, the approach of those he had encountered was different from the systematic rigour and clarity about methodology required to match his conception of what constitutes research. This raises questions as to whether or not the conception of 'practice based research', which informs many art and design schools, needs to be clarified and placed on a firmer foundation or whether it is the engineering labs operating within the context of the creative industries that could benefit from a broader, more qualitative understanding of what research might be.

It would certainly be a mistake to assume that Hollemans had come to his conclusions lightly. For example, he supported his assertion describing the experience of setting an assignment in a seminar for third year students. The students had been set the task of considering a series of well established classic games such as snakes and ladders, memory and scrabble and to then devise a framework and guidelines for enhancing these classic games in ways that might be helpful in the development of Entertaible. As Hollemans put it: *'We were saying have a look at these classic games. Imagine how you would enhance them and then try to draw from these enhancements the general principles that you used. We were looking for guidelines, for example you might have a traditional game mechanism such as a pair of dice and on Entertaible because the dice are electronic you could in principle manipulate them, intervening to favour the player who is performing least well. This is an example of a mechanism and a guideline for how you could change that mechanism on Entertaible. You might apply that principle to ten or twenty different games. Although this means thinking on a slightly higher level of abstraction it is in fact not that abstract; I would say that we were looking for something generic. What we got instead were three exciting ideas for enhancing the classical games for*

Entertaible along with a group of highly motivated students. What we did not get were the more comprehensive generic guidelines we were looking for.' This experience represented a confirmation for Hollemans of both the potential and limits of what could be expected from HKU students.

Building longer term relationships

The Ant Colonies game was successful enough to have lead to another project realised in 2006/7 in which a new team of Master's students have again asked to develop a demo game for Entertaible. The follow up project indicates good will between the parties and the desire to find ways to deepen the relationship. However, as Entertaible moves from the research phase into the business phase it is unclear how the relationship with Philips Research Labs will develop.

For the Utrecht School of the Arts it is not only important to give its Master's students the option to work with advanced technologies but also to build a systematic understanding of the different languages and expectations of the diverse industrial partners. Enabling this understanding to grow and applying the insights gained into both future projects as well as course development will be an important part of building long-term relationships.

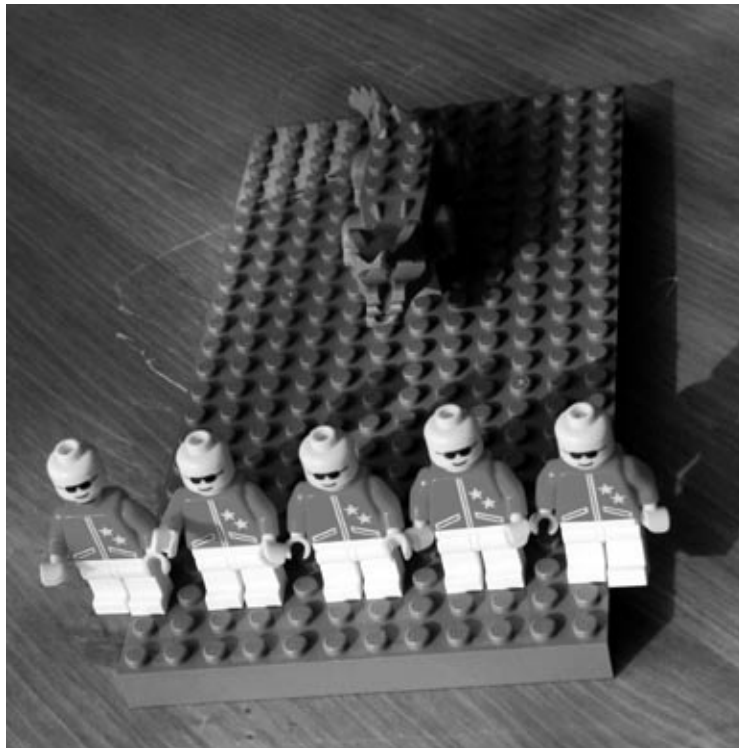
Both Willem-Jan Renger and Gerard Hollemans went to great lengths to point out that building long-term relationships depended heavily on personal relationships. As Hollemans put it: *'It is about people meeting people. Investing in people and taking calculated risks. And also people visiting each other's site. It was very illuminating to walk around the HKU and to understand the environment they work in. But the personal is also fragile. If I left Philips then the relationship to the HKU could go back practically to zero. It is as though you need to think of something like "account managers".'*

In a sense the concept of 'account managers' is already part of the school's highly elaborated Xchange bureau. Willem-Jan Renger described how five years ago, he had re-organised the project bureau: 'We rebuilt it from scratch, there were three people and now we have eleven people working just to have faces connected to projects. If we conclude that the personal relationship is a vital ingredient then once it becomes institutionalised you still need a personal 'soft system' like exchanges of experiences to build trust. We had to make an explicit investment in a lot of meetings to share tacit knowledge. Its not a situation where you can sit down and make a deal and imagine that this will constitute a long term arrangement. So the building up of that kind of fuzzy image of what works and what doesn't is very difficult to capture.'

Whereas the art school emphasizes investment in orchestrating strategic partnerships with industrial partners, Hollemans is anxious to focus on caution, on the need to limit the risks and carefully manage the expectations, to take things step by step. *'Building relationships is something that starts with small investments and taking calculated risks. Which is what we did here. So if we burn our fingers then the damage to both parties is limited. We can all disengage without any harm done. It became clear to me that relationships within and between institutions are primarily relationships between people.'*



A game that remediates board and computer games for the new platform the *Entertaible*. Designed by Dirk Ammerlaan, Iris Douma, Micah Hrehovcsik, Ellis Hartog (Vonk Design)



The Automatic
Project the Crocodile

Simon Robertshaw. Since completing his Masters from the Royal College of Art, Simon Robertshaw has worked as a creative technologist. His artistic work has been shown throughout Europe. He has worked as an educationalist on the Interactive Media course at the University of Wales, Newport and developed, and was course leader for the MA Creative Technology course at the University of Salford. He was appointed as Head of Research at the International Centre for Digital Content at Liverpool John Moores University from 2000 to 2003. His research focus built on creative technology and anticipated, examined and evaluated future market opportunities and growth areas, developing knowledge and understanding of the digital content market in partnership with public and private sectors. In 2006 he led the development of The Automatic, a facility and environment that takes the concept of an Innovation Lab as a starting point. It created inspiring backdrops and toolsets for creative thinking and, with a mixture of play, thought and creativity, facilitators and clients could take an issue or idea and explore new perspectives and depth. Professor Robertshaw is now Director at the Centre for Digital and Creative Industries at the University of Central Lancashire. www.icdc.org.uk

Protect the Crocodile

By Simon Robertshaw

Before entering the space your preconception of what an Innovation Lab may be, could lead you to think that you are about to enter a room that is clinical, full of computer technology. Perhaps walls you can write on, or perhaps spaces that are conducive to free thinking. At worst the fear that you will be asked to catch someone in your arms and so enter that forbidden territory of other people's personal space. I remember attending a number of facilitated workshops some years ago. 'Find a partner everyone' the facilitator demanded. Moments later we shuffled around embarrassingly to find someone we felt slightly comfortable with. 'Right. I want you to close your eyes...' Let's face it: we've all been there. That's one of the moments of revelation when we realise that we value our personal space extremely highly and we certainly don't want any strangers or even work colleagues entering it.

No such thing for The Automatic. I simply say to clients on arrival 'We're no tree huggers'.

When I thought about developing a facility that for all intents and purposes is an Innovation Lab, I considered these issues and spent some time thinking about developing an innovation workspace that built upon the creative methods that I had been using for the last twenty years. It had to have creativity at its source. I use this term here to mean design, risk taking, development methodologies and challenging all of these in its process.

What is The Automatic?

The following passages describe the methodologies, development work, technological solutions, environment and services that The Automatic provides. It differs from other Innovation Labs in the UK in that it combines both facilitation of groups and creative technological development. In this sense it is unique. The reason is that this venture develops new solutions from a hybrid of creativity, business know-how and technology, applying them to a sector normally outside of what we might call 'creative'. Its impact has already been measured in areas such as banking and



The Automatic



Simon Robertshaw



The Automatic;
Gareth Price, Onno Baudouin and
Simon Robertshaw

Protect the Crocodile

financial services, health, local government and small business.

The Automatic is an environment and resource that takes the concept of an Innovation Lab as a starting point. It has created inspiring backdrops and toolsets for creative thinking and, with a mixture of play, thought and creativity, facilitators and clients can take an issue or idea and explore new perspectives and depth.

The Automatic's media systems and furniture are moveable and we make use of different settings to change mood and thinking space.

The Automatic uses proprietary software that gives an alternative way of inputting and manipulating words and ideas to give novel forms of interaction and ambient display. As a result it facilitates broad thinking and blurs the activities of problem solving and play.

The Automatic was developed by Liverpool John Moores University and was designed by researchers in creative technology, working to a brief informed by experienced business facilitators. This balance is at the heart of its strength, and needs to be maintained as a key feature of the facility; a basis for the continuous development and innovation of the tools and environment.

Being a totally flexible proposition, internal and external clients have the opportunity to plan their events in conjunction with the Automatic team, who design a package to meet the specific customer needs on a bespoke basis.

The sessions outlined below illustrate some of the activity we engage in, and in certain cases details are left out due to confidentiality with the client. However I hope to illustrate examples of activities and how this creates real solutions through creative methodologies. In doing so it provides real solutions and financial benefits to those outside the normal creative sector. What I have not discussed in detail is the requirements and skill base of the facilitators involved. In many ways this is the key to its success.

Many resources exist for facilitation of groups, however it is the experience and expertise of the individuals involved that gives The Automatic its distinct approach, that is a mix of creative development and facilitation.

Beginnings, foundations, background

Principally the development of the facility was predominately influenced by the people involved. A small group that worked together, that had the same passion and will to make it work. A hybrid of skills and knowledge in the arts, media, creative technology, education, technology and programming. Also integral to the concept of The Automatic was the experience of development work that took place at the International Centre for Digital Content at Liverpool John Moores University from 2000. At this point as Head of Research and later as Director of ICDC (International Centre for Digital Content). I undertook a number of innovative projects utilising and experimenting with development and design methodologies. They were not a great deal different from what one would call facilitation, strategy development, consulting or even business consultation. Dressed up in a number of different fashionable terms to describe something that is principally based on understanding and solving problems within a variety of contexts and using creative methodologies to solve those problems.

What we knew was that technology should only form part of the equation, real life counts for a great deal! Thinking, reflection, group participation are all key.

The Automatic is currently based on the old Marconi site in Liverpool. The name pays homage to the Automatic Telephone Manufacturing Company established in 1912, the first company to undertake the manufacture of automatic telephone equipment in the UK. We decided early on to reference the history of the site, which had always involved technology in some form or another, principally around telecommunications. This I must say is the only acknowledgement to history. The facility itself pays no credence to historical texts or quotation. What is important is that the notion of innovation has real value: Value both in a commercial sphere and also for the wider social context. Value in terms



Tennis for BBC Big Screen



Mobile images and text

of real benefit whether on a commercial or cultural level. But most importantly the input back to The Automatic team increases its knowledge and ability to satisfy both its needs as a development environment and a facilitation space.

Initially we developed a number of different workshops that could be offered to clients. I use the word 'client' here in respect to refer to industry, academia, cultural organisations and the public sector. The workshops were originally developed to encourage collaboration and creative thinking within a dynamic environment. This vague starting point has since become honed and re-focussed through experience and practical application of the techniques devised.

Our experiences told us that environment was a key element. Much has been talked about regarding techniques for facilitation but very little in the context of environment. As developers of environmental work, as either installation architects or working in developing technology for architectural structures, context and environment is a key element in designing and building solutions for the space. The space utilises multiple projection to not only influence mood but also to allow users to interact with large screen projection for development work.

Big screens in public space

It is important to note that The Automatic is also a development environment. It has developed all the facilitation technologies within its core team. Commissions and development work for the Big Screens in the UK have also been undertaken by

the team. The work itself compliments the facilitation space in that group interaction is an overriding principle to both solutions. The commissions for the BBC involved several commissions for the World Cup, Wimbledon and Rugby.

Using a camera mounted on the screen which analyses movement directly in front of it, the games we developed allow large groups of people to interact with the screen in real time. An important aspect to understand is that the people, space and environment are actively engaged in a combination of development work, commercial activity and facilitation. This is not a necessary symptom of commercial sustainability but a necessity for ongoing knowledge and expertise, refreshing and invigorating the team, its profile and reputation.

Working with large corporations at The Automatic has been one of the most revealing aspects of the work we undertake. Traditionally, 'creatives' only engage in the comfort zone of academia, cultural and artistic environments. The challenge of working across these and more unfamiliar environments and activities has proven to be a challenge to the notion of creativity and its application. The writing and processes employed by the like of de Bono, Osborn and the various individuals involved in creative thinking are of course noteworthy. The facilitation techniques and technology we have developed certainly build on experience, thinking laterally and taking risks. Perhaps importantly psychological and cognitive science has a role to play in the measuring of its success.



The main area is the 10m x 3m projection screen



Using individual keyboards



Matrix of questions and answers

Fortunately most of these activities we are engaged in are grounded and born out of our experience of the arts, but not exclusive to it. Certainly having a user centred focus to solving aspects of problems is integral to its success, and takes much from interaction design techniques. The other important aspects are understanding business planning, organisational management, group dynamics, creative techniques and workshop development techniques. Most of this was experience gained from working at ICDC which brought together business know how and research techniques. For us as a small team it works, and my purpose here is to share that experience.

Case studies

We have engaged a variety of users from a broad base. The following examples come from sessions with Barclays Bank, the National Health Service (NHS), and a young people's project with FACT, Cornerhouse and Folly.

Two-day workshops begin a month before with a conversation with the client. This is integral to the development and success of the workshop. A clear understanding of the management structure, issues, problems and positives/negatives need to be clearly defined by the facilitators at the Automatic in order to fully realise a solution for the client. This can typically take up to a day as some organisational structures such as the NHS are complex and need to be clearly understood.

In the case of the Young People's project the objective was to establish a knowledge of the way in which young people develop their own technical

language and social networking through communication technology. I am using this as an example of something that deals with the cultural impact of technology and the ways in which people engage with it. FACT, the Foundation for Art and Creative Technology, Folly and Cornerhouse are all arts organisations that fit into the publicly funded model of engaging its audience through, exhibition and education. In this instance the relevant organisations see the benefit of The Automatic as not only as feedback mechanism but also in developing new ways of engaging young people.

The first step before the users even attend the first session is to make use of the mobile phones or cultural probe, which are sent out to each individual two weeks prior to the workshop. This allows us to engage the user prior to them entering the space. Using this bespoke service we can ask each individual to respond to specific questions in the form of text or images. These are then sent back to the servers at The Automatic for analysis, discussion and compiled for display. In the case of Barclays Bank the cultural probe was used largely for the facilitation team to gain a greater understanding of the Barclays workspace, how they integrated as staff within that space, and their expectations of the two-day workshop.

Once the clients' needs are understood and the potential outcomes are agreed then the workshop date is agreed. As with all clients we guarantee action points or aspects which can be clearly identified and taken forward. For the client to see real benefit they need real outcome. We are not an 'away day'.

On entering the space the workshop attendees see a large open plan area approximately 4000 m². Within this space are large screen projections, displaying high definition footage that create a new and vibrant experience. The boardroom or office space does not exist, and any association is actively discouraged. Flip charts and powerpoint are not used. A number of work areas can be adapted and changed to meet the needs for discussion, development and gaming. Writing surfaces are free standing and movable. They can be moved to form new work areas or simply used to explore ideas as standard white boards. The seating areas are mostly made up of couches or relaxed seating areas. The main area is the 10m x 3m projection screen that allows a single image to be projected across.

After introducing the session and making the participants aware of the activities ahead the cultural probe image and text is reviewed on the large projection screen. This provides a relaxed introduction to the two days' activity.

A typical ice-breaker follows, which allows the group to engage in a treasure hunt type game. Some groups are fairly familiar with one another, as in the case of Barclays. However in the case of the Young People's project they had never met before. The group is split into two teams. Each team is given a walkie-talkie set and a map of the surrounding area. They decide in the team who will go outside in order to retrieve images located in various parts of the grounds. A simple game that makes use of communication and is a team building exercise. This usually takes around 40 minutes. The whole process is videoed and then replayed to the whole group on completion for review.

The Distiller

The following activity makes use of another system developed at The Automatic, the Distiller. This is a system that was developed to encourage groups of people to rapidly develop ideas and solutions. I will describe this from a user perspective. The facilitator stands in front of the large screen projection and may ask a question, which of course is pre-prepared. The other facilitator types this question via a wireless keyboard, which appears on the screen. Each parti-

cipant has his/her own keyboard and is sitting on couches approximately five metres from the screen. Once the question appears each individual may then type an anonymous response via his/her own individual keyboard. Prior to this a number of games are played to make the attendees feel comfortable with using the keyboards.

Due to confidentiality I will only be referring to the NHS and Barclays session in broad terms. In the case of the NHS we were dealing with a group of people that operate as a team, they wanted to operate better as a group and needed to have a communication strategy in place. So questions such as 'What issues do you face on a day to day basis?' or 'What challenges do you face as a team?' give fast and direct responses. Once this answer has been given to each individual question the facilitator needs to work fast to sift and monitor the answers in order to move to the next question or deal with particular aspects of the answers given. The facilitator may ask a new question either from a direct answer that has arisen, or a new question. From this process a complex matrix of questions and answers builds up very quickly. It is important to note that the system is anonymous and allows everyone to contribute.

The Distiller as a toolset and technique has distinct advantages over the traditional approach of using a standard whiteboard or flip chart system. The first advantage is that it counters what we call 'the power of the pen'. The person holding the pen dictates what is being said and what is being written. Secondly it increases the likelihood that everyone will participate in the workshop, as some people tend to say a great deal, many others will not feel able to contribute what they know.

The Distiller technique has quantifiable advantages over the traditional approach of using a standard whiteboard or flip chart system. Firstly because it counters what we call 'the power of the pen'. The person holding the pen dictates what is being said and what is being written. Secondly it increases the likelihood that everyone will participate in the workshop, as some people tend to say a great deal, many others will not feel able to contribute what they know.

The Distiller brings issues to the fore. It allows the facilitator to drill down to very specific issues very quickly. Seventeen people answering one question provides immediate results very quickly and allows users to see other's answers immediately. Like the mobile phone solution or cultural probe it allows users to engage with a technology directly and effectively.

Within half an hour the facilitator has generated and directed the participants through a series of questions dealing with very specific issues. Within the context of the NHS the Distiller allowed the facilitator to discover and educate the users to the issues and responses of the whole group.

Depending on the issues and client, The Distiller process, can last from anything to 30 minutes to 90 minutes. Our preference is not to engage in more than 40 minutes as other forms of interaction through scenario development and utilising Lego give other insights and solutions to specific problems.

From the Distiller we then move to Lego as a form of engaging the group in structure and organisation through emotional attachment. In the case of Barclays, after a series of exercises to familiarise themselves with various model making and metaphor techniques, they were asked to model themselves in their workplace through metaphor. They are given a short amount of time to do this and each talk in turn about the model they have built. This not only allows the rest of the group to understand each individual's personal issues but also allows each individual to focus and discuss how they feel about their current position.

The next step is to pool the models as a representation of the service they provide. Other aspects of the service such as relationships to customers and external factors that influence the service are all modelled. The result is a representation of the service as perceived by the group.

We have used this toolset in other formats such as illustrating best practice and leadership issues. What these workshops always have in common is the personal and emotional attachment to the subject matter.

We have ourselves been through this process as The Automatic. The toolset and methodology of Lego Serious Play had been introduced to The Automatic over a two-day workshop. Building and developing a model of The Automatic as a service, its relationships to factors that determine its possible direction and ways in which we would want it to move forward. From this model we took key aspects that we believe are essential. One of the overriding principles that came out of this was *Protecting the Crocodile*, that is protecting the notion of creative practice and knowledge as a key element of The Automatic. In the case of the NHS, this process took something like three hours. It provided the group with an overall model that they all agree represents the service or in the case of the NHS skills and group dynamics of that particular group.

Scenarios

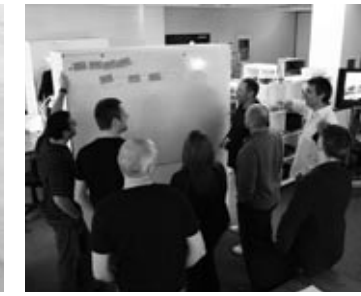
Having created emotional and realistic environments to deal with real issues the group now moves to scenario development. This component or toolkit largely utilises techniques from interaction design methodologies and some of the core development and research methodologies worked through at the ICDC (International Centre for Digital Content).

Scenario development is a key element of the workshop activity at The Automatic. In the case of Barclays we asked them to identify common problems that occurred within the workspace. These problems were initially written down, outlining the people involved, setting, where, when, how, and who. This is done on an individual basis in two groups. For example one person may describe in great detail an instance in which they were asked to re-prioritise their work at short notice and drop the current workload. Each individual ends up with a full scenario of that occurrence in great detail, in the form of a story. Each individual feeds back their scenario to the group as a whole for each member to discuss and to add or delete where necessary. This can take up to one hour and gives the group a more focussed set of problems and issues to deal with.

The next step is to then select two of these scenarios for each group. Each group then works as a team



Lego Serious Play



Scenario development



Storytelling, narrative, group participation and agreement

in developing a solution to the selected scenarios. Once again groups are encouraged to give highly detailed accounts. Through discussion and agreement each group ends up with two finished written scenarios. Once again they come together to discuss and agree a solution.

This provides the group as a whole definite potential to solutions principally through storytelling, narrative, group participation and agreement.

In the case of Barclays the scenarios were illustrated through photography that gave a feeling of storyboards. Other groups have developed their scenarios into short video pieces and in one case with security guards the scenarios developed into two performances.

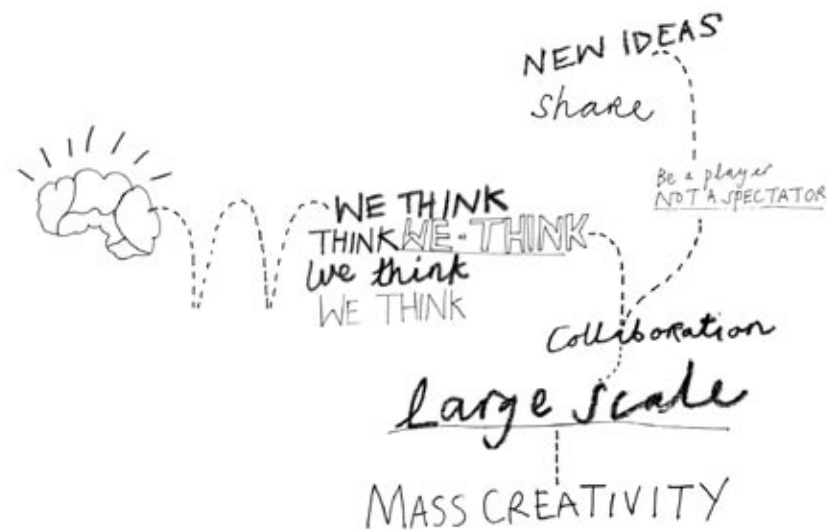
In the cases of Barclays and the NHS we returned to the Distiller to identify action points that needed to be taken forward for the group. It's worth remembering that the process is integral to the workings of The Automatic. Lego, mobile phones or cultural probe, The Distiller are only part of the solution, what is important is that the group feel they have a series of positive action points to build upon and take forward. The story doesn't end there. In the case of Barclays the management now need to appreciate their responsibilities, management processes and understand their relationship to each other's responsibilities. They will be coming into the Automatic in the near future.

Following Up

Feedback from each session is given back to the client responsible for booking the workshop, whether a manager, organisation or people involved in the workshop. All aspects of the workshops are documented and given to the client.

The Automatic is fundamentally about developing knowledge within groups that wish to achieve an agreed outcome that can be taken forward, and using that new-found knowledge to instigate change. Its use of certain processes and techniques have been applied across areas that would not normally engage in such creative methodologies. The impact is clear and achieves results that have real value and benefit for those involved. The current activity has mostly been around issues of communication and management in large organisations. The Automatic is now in a situation to take this model and adapt it into many other areas that lie outside the normal confines of creative practice and explore new interdisciplinary activities. For us the key is that the creative methods we hold so dear and employ on a daily basis and yet find little time to express or even define have highly effective and strategic uses outside of their usual confines. But our aspirations go further; our ambition is to offer a template that can be replicated to generate advantage (or value) in sectors ranging from academic research to commercial applications. But along the way we never lose sight of the need to 'Protect the crocodile'.

We-think



Charles Leadbeater is a leading authority on innovation and creativity. His latest book *We-think: the power of mass creativity*, charts the rise of mass, participative approaches to innovation from science and open source software, to computer games and political campaigning. Charles has worked extensively as a senior adviser to the governments over the past decade, advising the 10 Downing St policy unit, the Department for Trade and Industry and the European Commission on the rise of the knowledge driven economy and the Internet, as well as the government of Shanghai. He is an advisor to the Department for Education's Innovation Unit on future strategies for more networked and personalised approaches to learning and education. A visiting senior fellow at the British National Endowment for Science Technology and the Arts, he is also a longstanding senior research associate with the influential London think-tank Demos and a visiting fellow at Oxford University's Saïd Business School. Charles's current research focuses on how mass, user driven innovation is reshaping organisations, with users increasingly co-creators of products and services. He is also exploring the emergence of China, India and Korea as sources of research and innovation, through a two-year, £350,000 research programme, the Atlas of Ideas, funded by the British government and a consortia of companies.

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The Beach Ethic

By Charles Leadbeater

Beaches are ordered without being controlled. No one is in charge. Beaches are model civic spaces: tolerant, playful, self-regulating, democratic in spirit, mildly carnivalesque. Underlying the beach's appeal is a simple idea: the beach is a commons where people can self-organise in play. As a day on the beach unfolds everyone takes their spot, adjusting minutely to where everyone else has pitched their towel, tent or windbreak. There are no zoning regulations, fences nor white lines to tell you where to go (admittedly this is not true of beaches in France and Italy in high summer). The order emerges as each family joins the throng. Yet that order will not be exactly the same two days running.

On popular beaches people spend all day in close proximity but they are generally civil and considerate. They do not interfere with one another and disputes between neighbours are rare. Excessive noise is frowned upon. People generally avoid stepping on one another's towels or interrupting impromptu football matches. Other than the odd lifeguard to look after safety, no one is in a position of authority. Perhaps precisely because there is no one in control people take it upon themselves to self-regulate. Parents look out for one another's children. Complexity theorists have a fancy name for this: they call it emergence, when an overall order emerges from a system with many participants; no one person is in charge; each participant is adjusting to their local conditions (the people on the towel

next to them); yet a stable organisation emerges from these thousands of interconnected decisions.

Yet adaptive and self-organising communities rely on more than good communications between neighbours and peers to make sure everything works. An overall order emerges from a mass of localised decisions only if there are some simple norms and goals to provide a skeleton structure. On the beach those norms stem from the common goal of having a good time, relaxing with your family and friends, not being at work. It is easy to understand what everyone else is trying to achieve. That is what helps people to get on. Beaches are egalitarian in spirit. That is not to say there are no posh resorts. Generally a beach is a bad place to show off social status, armed with only a towel and trunks (although some people certainly like to show off their flat stomachs.) But there is no room for BMWs, Mont Blanc pens and other signifiers of wealth and prestige. Ages, sexes and classes mingle. Karl Marx and Queen Victoria both liked an outing to the Isle of Wight.

Beaches are democratic because barriers to entry are almost non-existent: having a towel helps but even that it is not essential. People take pleasure not just in their physical surroundings but the atmosphere in which everyone else is having a good time. Normal rules cannot apply because there is no permanent property. People read on beaches in droves but few work. Thankfully beaches are hostile to most modern technology such as computers, phones and televisions. Beach life is egalitarian because the technology is resolutely cheap and simple: buckets and spades, nets and kites, good for toddlers and grandparents. The technological acceleration that has so affected the rest of our lives has passed the beach by.

The public beach is an example of self-organising, peer-to-peer, commons-based production, in this case of pleasure. And of course it is not alone:

Not only do we like what beaches do for us as individuals, we like the kind of society we become on a beach: civil and playful, active and open, above all self-regulating. There are neither managers nor guardians telling us what to do. The public beach is an example of self-organising, peer-to-peer, commons-based production, in this case of pleasure. And of course it is not alone: public spaces of all kinds thrive on this ethic of mass self-regulation and participation: festivals, carnivals, parks, libraries all exhibit many of the same features.

The Internet is feeding the emergence of highly collaborative endeavours that rely on mass contribution from many thousands of participants on a

modern commons, a meeting place and shared resource for millions of independent contributors. Like the agricultural commons before them these new commons, the likes of Wikipedia, and Linux, are under threat. In England the village commons were enclosed into private property to encourage more private investment to raise agricultural productivity and provide more food for expanding urban populations in the 18th and 19th century. Now the same argument is being used – often quite erroneously – to justify enclosures of the digital commons that are emerging from Internet culture. Were these emergent commons to be parcelled up and fenced off then mass, participatory, barefoot solutions could become all but impossible. We would return to our familiar dull roles as consumers and waged workers, but we would be denied the expanding opportunities to be participants and contributors. We could buy, have, make and acquire, but we would find it much more difficult to enjoy collaborating, participating, contributing and playing.

To understand how dire this world of digital enclosures could be, imagine finding your favourite public beach had been bought by Microsoft. You would only get onto the beach by buying Microsoft towels or windbreaks. You would be told where you could lay down your towel according to how much you had paid. If you wanted to surf as well as sunbathe it might cost you more. Kite flying would require a permit. Every two years you would find your equipment was no longer compatible with the beach's sand. You could not modify your windbreak yourself, because key aspects of the design would be kept secret. You might still have a good time but the commons would have been turned into commerce; you would not be a player but a consumer, passive and dependent.

Something profound is shifting in our culture. You can see the signs all around: the growth of YouTube, the video sharing site; the accumulation of blogs, 55m worldwide and growing; Wikipedia, the free volunteer created encyclopaedia that gets more traffic than any other online encyclopaedia; open source software like Linux and Apache; massive, multiplayer computer games such as World of Warcraft in which players create many of the characters and much of the action; campaigns like Jubilee 2000 which were largely self-organised on a shoestring; trading systems like eBay, which give people tools and a platform on which they can do most of what is needed.

We are entering a new age of participation. The 20th century was all about the growth of mass production, mainly of industrial goods but also services, for a mass consumer society. The 21st century will be shaped by the growth of a society and economy of mass participation: more people than ever will be able to have their say, voice their views, make their contribution, add their ideas into the mix. That does not mean everyone will want to stop being consumers. But more of the time, more people will see themselves as participants, players not spectators, part of the action not on the sidelines. The people formerly known as the audience are no longer content to sit,

watch and listen to professionals perform. A significant number of them, some of the time, want to take part by ranking, rating, criticising, amending, sharing and distributing information, ideas, code and content. The 20th century was dominated by the creation of and attempts to reform hierarchical institutions of the modern industry to make them more efficient, responsive and sometimes humane, whether factories or lumbering private sector and state bureaucracies. Much of the 21st century will be about how new organisations emerge from this culture of mass participation and older ones respond to it. Who will be able to participate, in what and to what ends? More companies will try to get us to participate as fans of brands – like Apple – worshipping something created for us. But there will also productive communities like Wikipedia and Linux, which come with an anti-commercial, counter cultural ethos of self-governance. There will be more folk culture, popular, authentic, democratic, straight from the people. But for some this will mean a new route to celebrity, to make it as a star in the era of Pop Idol. Participation is not an alternative to what Guy Debord, the founder of the Situationist International, called the passive ‘society of the spectacle’. Participation is the new spectacle: all over the place, more people are making a spectacle of themselves more of the time. So this participative culture could unleash a new wave of voyeurism, vanity and self-obsession: more affluent teenagers, obsessing about their MySpace site and their social networks. But it could also signal something much more profound and beneficial. As more people have their say and make their contribution that could deepen democracy and widen debate, breathing new life into the public sphere. It could extend equality by making it easier for those with few resources and no voice to organise themselves and be heard, to spread knowledge to those who cannot afford traditional libraries or schools. Innovation which is largely targeted at those who can pay, could also flow to the poor who cannot if more knowledge is shared on open and public platforms. And it should be good for freedom. Not just because it might extend the freedom to choose as a consumer. But because as more people become participants, taking part in the action not just watching it, they will enjoy a deeper sense of freedom than comes from being creative.

Whether we realise the potential of what could be a new age of participation depends on how we can organise ourselves. Traditional, top down, closed, hierarchical organisations are organised as value chains: each step in a linear process adds value before a good is sold and transferred to the waiting consumer. Mass participation is breeding new ways to organise ourselves, without requiring much by way of traditional organisation. The likes of Wikipedia and Linux, YouTube and Craigslist do require organisations. But by distributing tools to users, allowing them to participate, produce, share, amend, rate and rank content, they mobilise the participants as part of the productive resources of the system. Although the kernel and the platform is often provided by a company or a small group of people, that becomes the basis for a mass of contributions. These large

scale collaboratives work: they programme software; create games; trade masses of second goods; write encyclopaedias. Yet there is no elaborate division of labour set down from on high. People distribute themselves to tasks. These highly collaborative, largely self-organising endeavours do not resemble value chains. The way they work cannot be drawn in a series of neat, straight lines. They resemble communities, movement, festivals, carnivals or as one person put it ‘a bowl of spaghetti’. These collaborations should not really work. They often do not pay people to make contributions. No one really seems to be in charge. And yet they deliver: Linux is one of the biggest competitors to Microsoft; Wikipedia gets more web traffic than the New York Times online; Craigslist is eating into the advertising revenues of regional newspapers; social networking sites like MySpace are destroying teen magazines. These are pigs that can fly.

Now innovation and creativity are becoming mass activities, dispersed across society: Innovation *by* the masses not *for* the masses.

We are devising new ways to create ideas and innovate together at scale. Most creativity is collaborative. It combines different views, disciplines and insights in new ways. Most innovation comes from creative conversations between people with different insights and skills. The opportunities to engage in those creative exchanges are expanding the whole time largely thanks to the communications technologies that give voice to many more people and make it easier for them to connect. Many more new ideas will come from more sources. Innovation and creativity have been elite activities, undertaken by special people – writers, designers, architects, inventors – in special places – garrets, studies, laboratories. If you wanted more innovation you had to get more special people working in more special places, usually cut off from the outside world. Then innovation flowed down a pipeline from the boffins, to the waiting consumers. Now innovation and creativity are becoming mass activities, dispersed across society: Innovation *by* the masses not *for* the masses.

These emerging forms of collaboration are a peculiar mixture of the very old and the very new: the coming together of the very high tech with the pre-industrial. The best way to be ahead of the times is to be behind them. Some very old ideas that were sidelined by the growth of industrial era organisations, dominated by professionals, are being brought back to life.

Rural communities have depended upon common land and forests for centuries. In media and software we are witnessing the re-emergence of commons-based production, for example through open source software programmes that are free for people to download, use and amend. These

initiatives are creating a new digital commons of shared information, knowledge and resources people can draw upon. Scientific communities have used peer review to assess and improve work for four centuries. The likes of Wikipedia and Linux are talking the old idea of peer review to a mass scale. There is nothing new in mutual forms of ownership. They emerged in the 19th century for example in friendly societies. Open source ownership of software has breathed new life into a very old idea of shared ownership. There is nothing new about people collaborating to create complex works of art and culture: ancient epic poems, Beowulf, the Iliad and Odyssey were the product of many authors and performers over several centuries. YouTube and Flickr are breathing new life into an old folk tradition. Amateurs sidelined in the 20th century by the rise of the professions are making a comeback because they have access to tools, like powerful digital telescopes and cameras, that only professionals could get hold of before. These new collaborative forms of self-organisation are so powerful because they are *not* brand new. On the contrary, they bring back to life ways of organising ourselves which are very old. They remind us of things we've lost.

Out of all of this we get new ways to organise ourselves which are a mixture of the village and the network, folk and high tech, the craftsman and the geek, the pre-industrial brought back to life by the post industrial, all taken to scale by the spread of the Internet around the world. In Asia, where collective, rural, village traditions are even stronger, We-Think culture will be a different mix. The growth of Cyworld and Oh My News in Korea and Chinese games companies like Shanda, all of which rely on high levels of user participation, give us some first clues of what is to come as Asia takes to the Internet.

It is easy to sum up where this We-Think culture is headed: there will be more of it and it will get very messy.

There will be much more of it, probably lots more. We have only just begun to explore how we can use new technologies to allow us to participate and collaborate in new ways. In 2007 young teenagers are posting photographs on their websites. By 2012 they will be running entire television channels through websites. In 2007 the grainy videos on YouTube attract our attention. By 2012 making an animated film to levels of quality similar to Pixar may be almost as easy as animating a Powerpoint presentation. New tools to allow people to participate and create more are becoming available the whole time. And we will become more able to coordinate the contributions of many people. The Internet remember first emerged from academic research and now scientists are working on grid computing systems that will yolk together computers in many different locations to achieve complex tasks. The same techniques will in time be available to all of us. Collaboration among independent and distributed producers will get easier. The

barriers to participation and collaboration will continue to fall.

As a result life is going to continue to get very messy, because many of the categories we use to divide it up and organise ourselves are being scrambled up. Demand can breed some of its own supply when the consumers can become producers, at least some of the time. For some people leisure seems to have become a form of work. Professionals find themselves working alongside and sometimes competing with amateurs. The most successful new companies – Google and eBay among them – seem to be built on a sense of community or collective intelligence. Commerce and community seem to be getting mixed up in confusing ways.

Out of this scrambling up new and weird kinds of hybrids are emerging. We have folk celebrities, who have emerged from YouTube and Flickr; participation as spectacle; Pro-Ams, amateurs who pursue their passions to professional standards; open source communities like Linux, that provide the platform for a mass of commercial selling, by companies such as IBM and HP.

We will have many more, different ways to create more participative, open and collaborative organisations. And of course as they grow and mature they may also fail and disappoint. The downsides and limits of participation and collaboration will become more apparent: we-think might license conformity and group think. Social networking and user-generated content have become such a craze they will almost certainly provoke a backlash. Investors will lose money. People may grow weary and disenchanted. As social networking becomes a new kind of religion, there will be atheists and dissenters who want nothing to do with it. If collaboration is the buzz today, then quite soon the pendulum might swing back to independence and individuality.

We are moving into an era that will encourage more productive participation, collaboration and innovation from more people. That promises to bring us huge benefits. The first internet boom of the late 1990s offered to home deliver pet food to time pressed rich urban consumers. The social Internet, the wave of Wikipedia, YouTube and Linux, offers much more to deepen democracy, promote freedom and extend equality.

In the course of researching my book *We-Think* I met Marysia Lewandoska, a Polish born artist working in London, who has spent years studying the amateur film making clubs of Polish factories under Communist rule. Many of these clubs made feature length films of high quality. Summing up what the participants told her they got from their participation in the clubs she said: 'They were learning how to be free, to express themselves'. It is just possible that will be true for many more of us.

Charles Leadbeater is author of the forthcoming book *We-Think*, the latest draft of which is available from his website at www.charlesleadbeater.net.

Watershed
Bristol, UK



Clare Reddington. As Producer for iShed at Watershed, Bristol, Clare Reddington works with industry, academia and individuals on cross-sector collaborations and creative technology projects. Clare has worked closely with HP Labs since 2005, primarily on the development of SE3D, which enabled 3D animators access to an experimental Utility Rendering Service. Britain's first dedicated media centre, Watershed opened in 1982. It is housed in former industrial premises on Bristol's waterfront and stands at the gateway to Harbourside, a major cultural, commercial and residential regeneration development in the heart of Bristol, UK. The building houses three cinemas, a Café/Bar and a suite of event/conferencing spaces. iShed, a Community Interest Company trading as part of the Watershed Group, will create new capacity to proactively identify, incubate and promote interdisciplinary collaboration in the field of digital media and technology. www.watershed.co.uk

Erik Geelhoed is a researcher with Hewlett-Packard Labs (HP Labs), Bristol. He studied psychology at the University of Amsterdam and was a researcher at the Universities of Plymouth, Birmingham and Bristol before joining HP Labs in 1992. He has carried out 'lifestyle' research in the areas of mobile appliances, location based services and mediated communication. The majority of HP's research is conducted in business groups, which develop the products and services offered to customers. HP Labs' function is to deliver breakthrough technologies and technology advancements that provide a competitive advantage for HP, and to create business opportunities that go beyond HP's current strategies. The lab also contributes to HP strategy creation and alignment and invests in fundamental science and technology in areas of interest to HP. www.hpl.hp.com

Location, Creation, Location

Clare Reddington, Eric Geelhoed and other colleagues involved in new media projects at city level in Bristol, UK, interviewed by Bronac Ferran

This essay focuses on Watershed Media Centre, right in the centre of Bristol, in the West of England. Surrounded by bars, nightclubs and restaurants (and round the corner from Millennium Square with its Science Centre and designer bridge) Watershed has emerged as a highly uncommon example of a publicly funded arts venue, which is also a hub and catalyst for the most important relationships spanning art, academia and commerce in the city. Its now long-term relationship with Hewlett-Packard (HP) Labs – mutually acknowledged as valued and rather exceptional – has lasted roughly a decade and continues to go from strength to strength. The relationship has broken the mould of the short-lived 'forays' into each other's territory that often passes for

effective knowledge exchange. A major development in 2007 will see the creation of a longer-term structure – a new educationally orientated Lab. Operating within Watershed, developed by HP Labs, and supported by the BBC, the two main Bristol Universities, it will have research at its heart.

In this instance it is clear that one of the overriding reasons for the success of this partnership has been the commitment of both parties to a place and to a community. It is an irony that where many have feared that media culture would undermine actual geographic community, in this case a distinctive sense of place has been the bedrock on which a lasting partnership has been built. Also Watershed has been extremely

imaginative about positioning itself as a publicly funded body. It has managed to reach out to the corporate world whilst deploying its publicly funded status to protect and legitimise interests and values that lie outside of traditional corporate attitudes to ownership and intellectual property.

Context

A recent report for the Creative Economy programme commissioned by the Department of Culture Media and Sport in the UK identified the importance of ‘core places, which act as creative industries’ powerhouses’.¹ Author Tom Fleming cites the example of Watershed as ‘a key broker for innovation in creative businesses, building convergence through partnership projects with HP Labs, while at the same time providing new network opportunities for cultural organisations and social enterprises. This works because Watershed constitutes place, offering connections in the immediate milieu, across the wider city, and into the city region through a mixed profile of proactive initiatives (from training to screenings) underpinned by the distinctive ambience of the building. This ambience is hard to plan for and cannot be guaranteed, but (..here is..) a culture for openness and connectedness, an embrace with place and a willingness to let the creative lead.’ Fleming rightly pinpoints the particular relationship with HP Labs within a set of significant and collaborative connections to other agencies in the city – the two universities, the BBC, Aardman Animation, Futurelab – which have helped to situate this media centre as a fulcrum for social and cultural innovation within the city.

As the editors of the *Beyond Productivity Information Technology, Innovation, and Creativity* publication produced by the National Academies Press in the United States stated in 2003:

‘Information Technology has now reached a stage of maturity, cost-effectiveness and diffusion that enables its effective engagement with many areas of art and design – not just to enhance productivity or to allow more efficient distribution, but to open up new creative possibilities’.²

This mirrors closely Watershed's analysis of its role in 2004, when it produced a strategic plan³ seeking to ‘replace the desire to control resources in a production orientated world with the instinct to open up new forms of collaborative creative engagement...to become inclusive rather than exclusive, open rather than closed and externally focused.’

It also said:

‘The key to a self-determined future lies in a financial model in which management controls rather than responds to the variables. Watershed needs to be able to graft the flexible, entrepreneurial and innovative culture which partners value so highly onto a sustainable core.....for Watershed the status quo is not a sustainable option. It may be possible to cut back the commitment to art in a socially responsive culture and develop the organisation as a successful building-led entertainment facility. This would represent a major failure of public nerve. The opportunity to nurture a new kind of entrepreneurial service model (which isn’t driven by either overriding commercial imperatives or the dependency mid-set of high subsidy culture) would disappear....to develop a transferable model of good practice (an exemplary social enterprise with culture and community at its heart driven by an instinct for entrepreneurial collaboration) would indeed be a prize worth winning.’

As noted above, the success of this analysis was clearly apparent by mid 2006 within national policy documents. Early in 2007 Watershed was also given a major endorsement by the Regional Development Agency which agreed to provide funding for purchase of the building.

Yet this identification and recognition has been a long

time coming: Watershed was founded as the UK’s first media centre 25 years ago, making it just one year older than HP Labs Bristol. Its Director, the maverick and visionary Dick Penny (also a theatre producer) led the organisation from 1991 to 1993 and returned in 1998 at a point of crisis for the organisation. The task ahead was steep: The organisation faced a rapidly diminishing level of public subsidy relative to its overall turnover. An option for merging it with a nearby visual arts venue was considered as the one way of avoiding collapse. A gap in perception of its value by core funders also appeared to be a stumbling block and an application in 1999 for ‘stabilisation’ funding from Arts Council England was rejected. What is clear looking back at this point of development of Watershed is that it took some key decisions which involved working even more closely with key partners in the city and repositioning itself as an aggregator of value – which has subsequently been seen (including by its major funders) to be extremely far-sighted.

What should also be noted here is that throughout England in the late 1990s concepts for ‘new media’ centres were ‘ten a penny’ across the country with energetic local authorities keen to access generous Arts Lottery funding which had provided hundreds of thousands of pounds for consultants to conduct feasibility studies into the construction of buildings that promised access to high tech equipment and training facilities. As Clive Gillman had noted in his report *Emergent Properties: the Centring Tendency in New Media* commissioned by Arts Council England in 1998 (which Watershed did not even feature in) many of these feasibility studies and emergent media centres were based on a false rhetoric, which failed to take into the account the distributed nature of new media tools as well as the accelerated pace of development. As a result investing public funds in the latest equipment would lead as likely as not to redundant technologies and out of date facilities within the space of a few years.

However, Bristol as a city had strong potential for accessing the kinds of connections that would enable a more sustainable approach to digital media and the creative industries in general. Since the early 1990s a

set of partnerships were emerging which resulted in the formation of Digital City Bristol in 1993-94. This project drew on the capacity and interest of key individuals within HP Labs, most prominently, psychologist Erik Geelhoed, who was descended (in his own words) from a long line of Amsterdam dissenters and anarchists and who made links for the Bristol consortium with the Amsterdam Digital city initiative and leading players in that project at the time. Bristol City Council and the University of the West of England (UWE) also played key roles in the project. Stuart Long at the Council, ensured that Digital City Bristol became an established part of the city’s online presence, while Linda Skinner of UWE provided a transfer route from HP Labs to Bristol City Council. Geelhoed was only one of a group of people within HP Labs in Bristol who saw the potential for carrying out research and development within a social context – working on early digital storytelling projects on housing estates and developing proximity and shared focus with venues such as the visual arts gallery Arnolfini and Watershed, which could broker links with artists who could help make manifest the creative capacity of the developing technologies as well as to audiences and participants who were encouraged to get involved in social use of technologies. According to Phil Stenton of HP Labs ‘It was a great example of a three-way partnership that emerged from the idea of one Dutchman in a corporate lab. I don’t think this could have happened anywhere that didn’t have the community links that Bristol has by virtue of having the Watershed as its hub’.

An in-depth and detailed report accessible on the Watershed website ‘Under Blue Skies’⁴ documents how projects such as Jukola⁵ brought together the public and members of staff at Watershed and indeed ‘all comers’ in this participatory process. Simultaneously with this investment in place and site, Watershed developed its virtual presence, and projects such as Electric December⁶ were launched that helped situate the organisation as being connected to networks beyond its immediate locality.

As one of the founders of Digital Amsterdam David Garcia has noted: ‘Looking back today, more than a decade after Digital City Bristol and the era of



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Sites from the Alternate Reality Game 'Geist' produced by Hazel Grian during her Interact Placement at HP Labs Bristol

1. <http://www.youkin.org/>

2. <http://www.evamcgill.co.uk/>

3. 'in-game' surveillance of characters

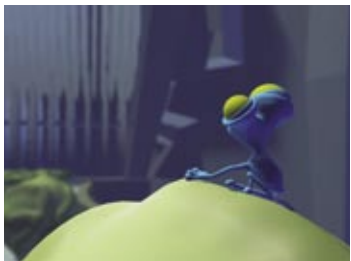
4. <http://www.subject180287.net/uplink.html>



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5. SED3D film *Ebenezer Margan's Photograph Emporium* by Jaime Pardo and Tia Perkins

6. SED3D film *Processed* directed by Matt Smith and Phill Webster, Rubber-ductions, Submerge and Fixel

7. SED3D film *Solid Sound* directed by Jo Hyde and Supernatural Studios

8. SED3D film *Little Angel* by Screenburn Limited

9. SED3D film *Two Fellas* by Dan Lane

10. SED3D film *If I had a Hammer* by Andy Bean



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online digital cities in general, when any lingering sense of contradiction between the digital and the physical world is being challenged in numerous ways by a volatile mix of locative and pervasive media, we see things happening that would have been unimaginable when HP Labs and Watershed began working together'. He continues: 'We no longer have to characterise digital media as necessarily diminishing our sense of belonging to somewhere; on the contrary a new generation of technologies amplify our sense of location and connectivity but in ways we are still struggling to understand.... When we try to answer the question what it is that a global giant sees in a medium- sized arts and media centre like Watershed we are left with the fact that Watershed materialises the social reality of the city's creative communities. In what appears to be an unbalanced relationship between an industrial giant and a medium size media centre we can observe that it is Watershed that provides the uncommon ground we seek, allowing multiple levels of activity to occur with asymmetrical degrees of involvement.'

The early Digital City Bristol relationships evolved into a programme of projects called Mobile Bristol ⁷, which involved user interaction with members of the public (see below) and also to a major link with the University of Bristol for a project led by HP called Mobile Bristol Virtual Centre of Excellence, which was funded by the UK Department of Trade and Industry Next-Wave programme, part of the City & Buildings Virtual Research Centre. Projects such as SE3D ⁸ also documented in the 'Under Blue Skies' report demonstrated the role of Watershed as broker between small animation companies and individuals and the willingness of HP Labs to open up its rendering farm facilities in the United States to work of talented individuals working in the UK.

Leveraging the latent public interest in research and development initiatives is a role that Watershed has activated and agilely facilitated over several years and, as noted above, further developments within the scope of planned building works at the centre in the next year or so will continue to grow and feed this potential public hunger for engagement with ideas and issues related to emergent technologies.

Whilst theories of developing knowledge transfer and knowledge exchange often endorse the importance of investment in networks and in 'hubs' there is less emphasis on providing a space for play and for social/informal relationships to build and grow over time. At the Uncommon Ground meeting, Clare Reddington of Watershed commented: 'the exciting thing about these relationships is that we have a shared passion for the city and the region. So in a sense we are collaborating on making the city a more creative space... (....) We work at all levels of education, for example we are working a great deal with schools. This is particularly challenging as Bristol has some of the worst performing schools in England: we work to deliver exciting digital media to engage schoolchildren in other ways'.

Building on knowledge accrued from these collaborations, and in January 2007 iShed was set up. A Community Interest Company trading as part of the Watershed Group, iShed will create new capacity to proactively identify, incubate and promote interdisciplinary collaboration, networking organisations and creative individuals in the field of digital media and technology. Additionally, as noted above the now long-term relationship that exists between HP, Watershed, the BBC in Bristol and the two universities will be further enhanced during 2007 with establishment of a new organisation based within the context of an extended Watershed building and which will be called the 'Pervasive Media College'. Phil Stenton, of HP Labs, describes how they will create 'a cross-disciplinary, cross-community teaching and research college affiliated to the University of the West of England and the University of Bristol, with a mission to pioneer new digital media through socially engaged practice and research at the heart of the community...(....). The College will build on the successful innovation and inclusive exploration cultures created by the Mobile Bristol programme and the Watershed creative media hub. The College will offer multi-disciplinary teaching and research contributed by Computer Science, Psychology, Social Informatics, Art and Design, Drama and Media Studies... In addition to the traditional collaborative spaces which foster incubation in a linear model from university to

start up we would like to encourage emergent explorations of ideas from any quarter – academics, industrialists, artists, designers, film makers, educationalists, students and community groups, such as members of the public...'

Whilst the UK and other countries are currently witnessing the rapid emergence of new transdisciplinary/cross faculty structures bridging arts, humanities and science/technologies within universities, such as has been documented elsewhere in this book, the involvement of a venue like Watershed at the heart of the Pervasive Media College venture is singularly interesting. Somehow, the balancing act that has been achieved with the evolution of this complex asymmetrical and successful relationship between HP Labs and Watershed is continuing to build links that span traditional dichotomies – local, global, public, private, individual, corporate – in fascinatingly effective ways. We point

to a final example of this in the shape of the work being done by artist Hazel Grian, at Watershed at present, which is the result of a short-term placement at HP Labs (described in Samuelle Carlson's essay elsewhere in this book). Hazel's placement at HP Labs has resulted in a project that is hosted on the Watershed site and which has been reaching audiences all over the world achieving 1000s of hits in its first week and becoming a bit of a cult success in the mysterious world of online games.⁹ Mysterious, evolving and multidirectional – that in summary is how the Watershed/HP Labs partnership has worked so far. Long may it continue.

1. <http://www.cepculture.gov.uk/index.cfm?fuseaction=main.viewBlogEntry&intMTEntryID=2989>

2. For the full report see http://www.nap.edu/catalog.php?record_id=10671

3. 'The 21st Century Watershed: Building a Different Kind of Creative Organisation'. An issues paper written by Peter Boyden Associates, 2004

4. <http://www.watershed.co.uk/reports/UnderBlueSkies.pdf>

5. http://66.102.9.104/search?q=cache:yvV2aVf7LDQJ:www.hp1.hp.com/personal/Kenton_Ohara/papers/Jukola_DIS.pdf+Kenton+0+Hara+and+Watershed&hl=en&ct=c1nk&cd=8&gl=uk
6. <http://www.electricdecember.org/04/press/ED04pr01.pdf>

7. <http://www.mobilebristol.com/flash.html>

8. <http://www.dshed.net/SE3D/>

9. <http://www.enter-geist.com/> and at <http://www.watershed.co.uk/cgi-bin/WebObjects/Watershed.woa/wa/news?object=119>



Textile produced by Lottie Karlsen during Arts Council England's Interact Placement at Mae Fah Luang Foundation, Thailand, photo by Charlotte Karlsen

Samuelle Carlson is a French born social anthropologist who evaluated the Artists' Insights: Interact project for Arts Council England in 2006. She has a background in History of Art and a Doctorate in Social Anthropology, Cambridge. She has worked in the field of new technologies and eScience and has interests in theories of historical change, the field of design, and the technologies and materiality of collaboration. Arts Council England is the national development agency for the arts in England. Interact is part of the Artists Insights programme, which aims to unlock the professional potential of artists. www.artscouncil.org.uk/artistsinsights and www.interact.mmu.ac.uk

Building on Uncommon Grounds –

A Perspective from Arts Council England's INTERACT Programme of Artist Placements in Innovative Industry Contexts

By Samuelle Carlson

Placements and interdisciplinarity

This paper illustrates the theme of this volume by investigating some of the issues raised by interdisciplinary collaborations. It reflects on the Arts Council England Interact Programme that defined 28 placements of already established artists in innovative research and industry contexts for up to nine months between the end of 2005 and the end of 2007. A sum of up to £10000 was allocated to each placement with additional funds available for advertising, recruitment, project management, mentoring and documentation. Twenty were based in England and others located in Brazil, India, Thailand and the United States. The evaluation framework was agreed with participants and Arts Council England with a view to producing 'learning' from the first phase placements to inform those happening later and to provide a critical reflection from an anthropologist's perspective on aspects of the programme. The case studies chosen were:

HP Labs Bristol – a five-month placement during which Hazel Grian worked with Hewlett-Packard

researchers on Alternate Reality Gaming.

HP Labs Bangalore – a six-month placement during which artist Ansuman Biswas explored innovative broadcasting applications.

BBC Open Archive – a placement inviting artists Vicki Bennett and Chris Dorley-Brown to test the potential of the Open Archive using open licences to make archival material available for non-profit use.

Askham Bryan College, York – this placement offered artist Neil Morley an opportunity to engage with farming, food production and environmental issues in Yorkshire.

Adobe/Macromedia, Montalvo Arts Center, California – Julie Myers worked at Adobe research labs on creative uses of their mobile technology.¹

The evaluation took into account the views and experience of the main actors involved in each placement, that is: artists selected for each placement; their host industrial partners; and project managers who were members of cultural agencies specialized in managing similar initiatives.

The placements were a particularly interesting case of interdisciplinarity due to the improbability of the collaboration they strove to encourage. There is a commonly held view that partnerships between Art and Industry are highly improbable because of their supposedly antagonistic relationships. This view was formalised by several sociological studies, the most renowned being by Pierre Bourdieu. His argument, which cannot be developed at length here, is best outlined in his 1992 work *The Rules of Art*. The themes include the various ways in which contemporary artists, still influenced by social and institutional configurations that emerged in the late 19th century, derive their authority (and works of art their commercial value) from their autonomy – or even their opposition – in relation to the political and economic powers that be.

However, evaluation of these placements revealed elements that challenge this perspective. This essay investigates what in the backgrounds and practices of the actors of the programme in fact made common ground possible between actors in the artistic and industrial sectors. It will then analyze some of the factors and processes encouraged during the placements which led to effective collaboration. Some of the outputs and effects generated by the placements are considered and finally the question of how such interdisciplinary collaboration can be evaluated in the absence of established assessment criteria and formal means of quantification will be addressed.

Defining and redefining identities

In the light of theories that stress the antagonistic relationship between the artistic and industrial fields, we need to ask whether the Interact programme is a case of this model being breached. Did patterns emerge that changed these relationships, or did the placements simply attract and concur to reproduce specific subgroups of those fields? A starting point was to examine what was meant by 'Artist' and 'Industry' in the context of Interact. Besides exploring participants' backgrounds, the evaluation looked at the criteria according to which artists were (self-) selected for the placements and how they compared themselves with their peers.

Backgrounds

Looking at the backgrounds of the applicants, we were struck by their *interdisciplinarity*. They frequently featured not only a formal education in fine art, but often engagement with the commercial sector as well as with academia. An artist commented on her own background: 'There was talk at the beginning that I wasn't an artist. I've been on the edge of commercial as well as art worlds and I don't see them as separate but it is sometimes assumed that people won't be producing experimental, innovating things (...) I have the intellect and the creativity to cross domains. I have an art degree and a degree in modern philosophy and am aware of academic theoretical language'. Her 'host' and 'placement manager' were well aware of these resources: 'she is interested and capable of talking to many people. She's interested in science for instance'; 'because she is a filmmaker and doesn't only work for Arts Council grants, she is commercially minded'.

This kind of background provided artists with *multiple identities*. Some of them did not necessarily call themselves an 'artist', as the following statements indicate: 'It all depends on how you can best sell yourself. "Artist" is a bigger umbrella, it covers all media. DJ is pigeonholing. I went through different labels myself: sonic artist, audio artist, digital art, DJ, musician, radio maker'. 'This ambiguity is the freedom; to be able to move; not to have to commit my identity'. Some artists also achieved this flexibility by not committing temporally: not associating themselves with a gallery that would require cultivating a relationship; always running two or three projects at the same time. This also paradoxically served the collaboration around Interact as artists admitted coping with some negative aspects of the placements due to their temporary nature.

Interdisciplinary backgrounds, flexible identities and attitudes to time are some of the qualities the artists shared and which supported their *openness and adaptability* to the collaboration.

Turning now to the industrial partners, one notices that artists did not interact with whole organizations but specific departments. Placements were rarely with the production or commercial departments of

a company, but more often in the R&D and user oriented ones. These departments were the most used to interdisciplinary collaborations. When asked about potential points of commonality with his host, an artist commented: 'Just to be involved in research and development is a common point. They have a commitment to the idea that it's not "here and now" all the time. I mean, it's not just about creating an object to sell it. They are ok with not knowing what the end-product will be. It's also not research and development in a comfort zone'. Interestingly, those members of the host institution with a background in social sciences or education seemed particularly good entry points for artists.

Finally, it was notable that both artists and hosts *were used to applying to or hosting placements*. Most also had experience in working with Arts Council England and other cultural intermediary agencies. The artists selected for the placements were all established artists and the guidelines for application were deliberately designed to deter early stage artists, new graduates etc. When the host was a media or technology company guidelines for application asked artists to show evidence of familiarity with the technology involved. Track record and 'idea' for the placement's context were both key criteria involved in assessing who would come to interview. The interview process usually involved members of the hosts from industry and project management organisation as well as each national or regional Arts Council Interact task team member involved in funding each placement.

We believe these traits to be more than incidental and to relate to trends at play on a larger scale.

Artists were often very technically minded and their hosts focused on creativity, whereas traditionally one might expect the reverse. The terms 'cultural industries' or 'creative industries' are just one expression of this process – creativity offering the common platform between the two.

Working methods

Bridges between artists and hosts' practices and ethos are to be found not only in their backgrounds but also in their working methods. Artists often perceived their hosts to be more like *scientists* than

industrialists and repeatedly referred to the common points between art and science. Artist Neil Morley interacted with agricultural industrialists for his placement and was struck by their capacity for exploring new ways to mix and match apparently unrelated elements to arrive at new combinations and innovations: 'Big farmers are quite creative. If they need a machine, they will try to make it themselves. Farmers have this ability to try to match things, like us; we mix and match (...) there is a creativity in science in the new ways it finds of doing things and art is the same'. To appropriate materials from various sources and test their properties and the variety of their combinations has been an established practice in art since the surrealist movement. It also happens to be a crucial stage in basic materials industries.

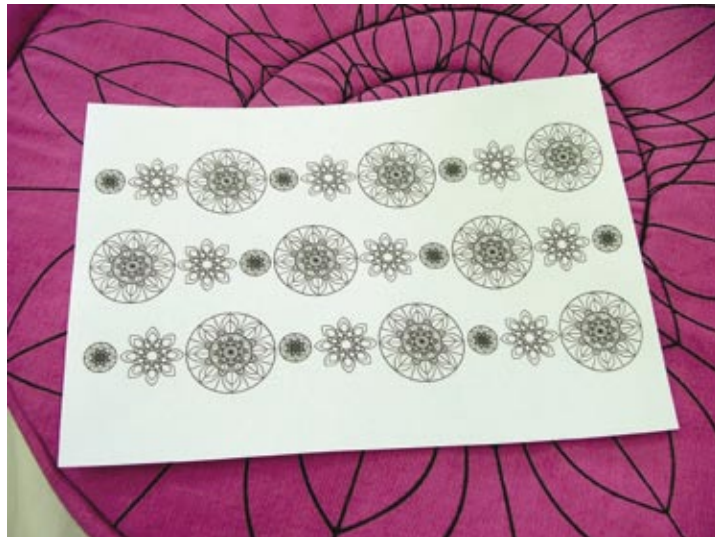
Another meeting ground between artists and their industrial partners was their common *need for unsettlement* as a driver of their practice. Both need to be constantly challenged in order to create/produce and each provided this opportunity for the other. Artist Vicki Bennett was well aware of what she could bring to the BBC: 'I don't know how they see me and Chris. They think of us as being crazy and we are, because we think in extreme ways and we always question things. We turn every stone up and it's something you don't need to do when you belong to an organization. That's what they want from us because it's a different way of looking at things'. Kenton O'Hara (HP Labs Bristol) similarly underlined the value of the artists' capacity to disrupt at the HP Lab *because the lab itself had to be disruptive within HP at large*.

Boundary object: corporate life

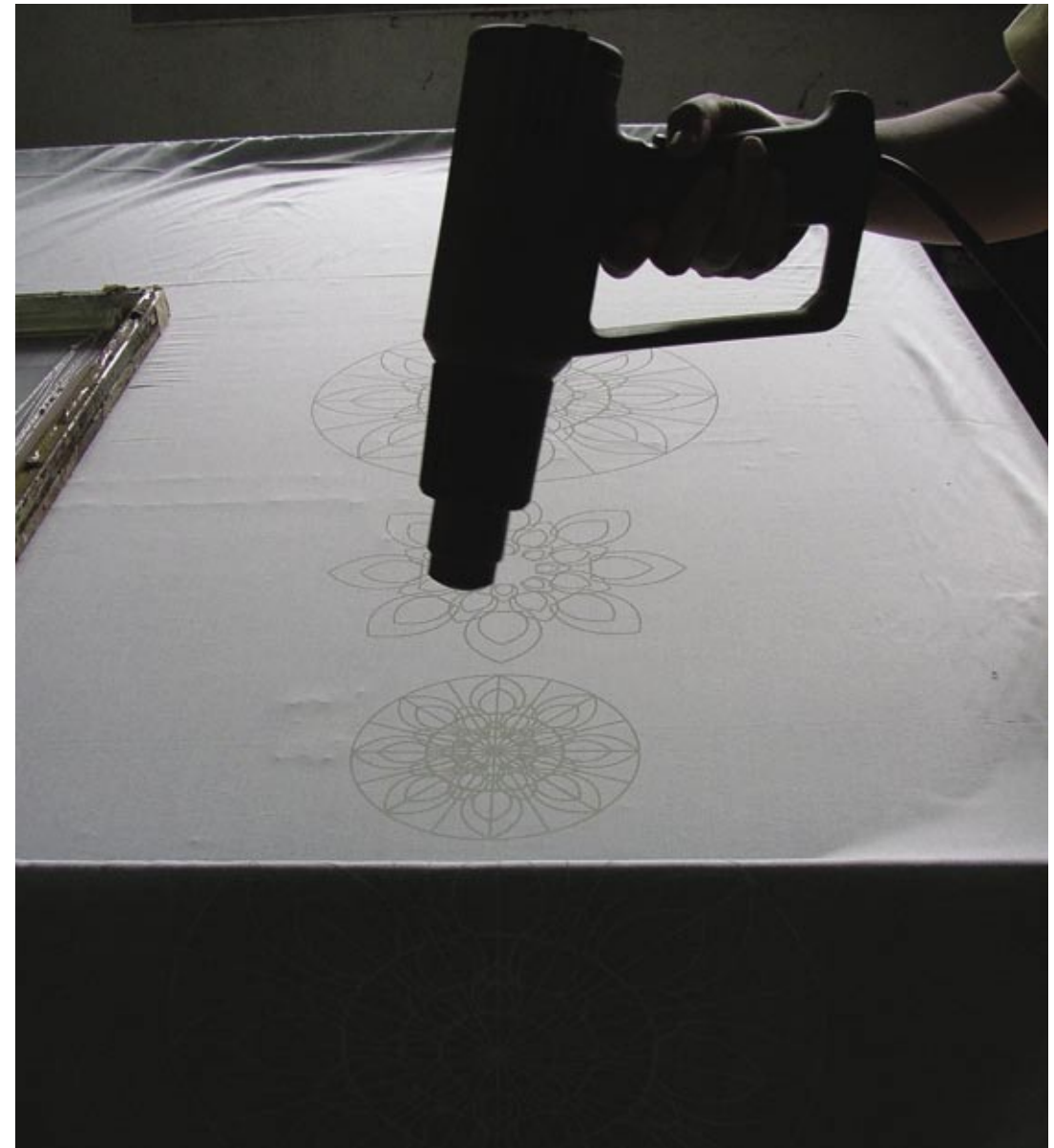
In contrast to theories stressing the antagonism of the artistic and industrial fields, we have picked out a number of factors that, in the specific case of this initiative, acted as bridges between the two: interdisciplinary backgrounds or interdisciplinary composition of the teams; a common perception of one's activity as one of research based on mixing and matching and constant unsettlement. However some elements of the placements were more divisive. 'Corporate life' is the most interesting as it emerged as a boundary object. The term 'boundary object' was coined in 1989



Ceramics and textiles produced by
Lottie Karlsen during Arts Council
England's Interact Placement at Mae
Fah Luang Foundation, Thailand,
photos by Charlotte Karlsen



Samuelle Carlson



Building on Uncommon Grounds - A Perspective from
Arts Council England's INTERACT Programme of Artist
Placements in Innovative Industry Contexts

in a specific context by Star and Griesemer² (see also Strathern 2004) to mean *something that unites at the same time as it divides*.

Hosts usually held a research and development position within their organisation as noted above. However the commercial side of the corporations attracted more ambivalent observations from artists: 'How far do you commercialise? How much do you stay outside and stay independent? I'm constantly negotiating that boundary. That's why I'm not part of any institution. But you get infected. The more I'm in, the more I'm changed, even without noticing it', said an artist. Or this other comment: 'I'm in the middle of that with this placement. Their research and development is really admirable but at the same time they were put in the middle of the poorest country also to create desire in the poorest. They need to get there quickly. I'm at the centre of it, vacillating on each side. I want to have money to be free but also deplore the system. It's not simple.' The ambivalence thus partly comes from the powerful temptation exercised by corporations. All the artists interviewed valued the security provided by the placements and all claimed they would have accepted a job at the host company if this had been proposed at the end of the placement!

The artists often commented on the 'double edge' impact of corporate life on creativity. They constantly reasserted their need for a structure in order to be creative and found the placements valuable in this sense. However, they often considered the corporate environment to be detrimental to creativity because of its tendency to compartmentalise.

The Interact Programme was not aimed at all artists and industrialists, but at individuals with complex profiles who did not even necessarily define themselves in these terms. Leaving aside the artists' often ambivalent reaction to corporate life, interdisciplinarity of backgrounds, familiarity with placements as a specific institutional form, adaptability acquired through the experience of multiple collaborations and an understanding of being involved in research, are points shared by artists and hosts. These acted as bridges between their respective milieus and generally eased the collaboration.

Exploring a new environment; assessing new relationships

Learning a new language

Many different factors were found to influence the course of the placements, however we chose to focus on those related to their early phase, when issues of language, for example, can be particularly crucial. This particularly applied with international placements when cultural differences are added to professional ones. A manager remarked about placements in general: 'We often speak slightly different languages. I found that the words that we use have particular meanings and depending on our 'professional programming' we may find we are having a conversation about completely different things.'

Issues of language concern not only the jargon that people use, but also their modes of communication. Vicki Bennett became disconcerted during her first weeks at the BBC because she had expected the organisation to be a very visual culture – people working on images and graphics all the time – whilst what she found was an organisation working primarily on and through text.

This goes some way to account for 'translators' in such placements, if not in interdisciplinarity in general. The role of interpreter between artists and hosts was one of the core roles of facilitators and managers. We saw that if these interpreters were particularly active in the pre-placement period, the language issue was often much less of a problem. Ansuman Biswas commented on the Mentoring Day organised before the start of a number of placements: 'being outside an institution, you are cut off from people and from the language. On the Mentoring Day, I got a sense of the language. It can sound like music if you don't know the language. It was good to see what the general music sounded like: smooth or harsh etc.' A journalist was also employed to promote Interact to the media. She defined her role as that of 'mediation for a broader audience... I identify what is interesting and then dramatize'. It emerged that artists as well as hosts acted as mutual translators for their respective milieu.³

Learning a new geography

Discovering a new environment is as much about learning a new geography as a new language. One artist remarked that she had never been told where

the canteen was, and the remedy could be as simple as providing a guided tour of a placement's facilities early in the process. However, the process also includes familiarising artists with all the resources available to them: search engines, software and tools, as well as with the people who can help using them. This was where most mentors in the host companies saw their role: 'The most difficult phase in a placement is the first one; when there is a need for orientation, to learn the rules, where the boundaries are and how the institution works'. This process of discovery is all the more important so that artists can then start learning the 'geography of what is possible' for their project: 'They first believe that everything is possible. There are big projects going in their head, but they often come back down. It's a process of learning the parameters'. For artist Chris Dorley-Brown, a failed placement would be one in which the artists would become too optimistic and misjudge what could be achieved within the limits of the placement. This suggests that interdisciplinary collaborations require actors with a capacity to listen and observe; actors without too rigid ideas of what they want to achieve but who leave room for the advent of unexpected parameters.

This crucial phase of exploration also explains why these collaborations were called 'placements'. 'These are "placements" rather than "residencies", which means that you kind of become an employee; you're not put on a pedestal but are embedded in the reality of the organization', artist Chris Dorley-Brown noted.

Developing trust

Another challenge in interdisciplinary collaborations is the fact that they are rarely supported by a shared professional or institutional culture that could provide a sense of trust and security amongst partners. Apprehension can result from not knowing what skills people have or what their expectations are. In addition, the desire to protect one's contribution to a project can arise due to a lack of 'visibility' at different levels. In the case of collaborations between artists and industrial partners in particular, Gordon Knox has pointed out artistic concern that 'the benefits generated by these collaborations might be turned into something they don't believe in' (Montalvo Summit, August 4-7 2006, Saragota, see fuller account

elsewhere in this publication). Contrasting cultures and practices do not necessarily form a barrier to trust and mutual understanding, however. Many participants in the Interact programme agreed that trust was generally about clarity in describing practices and agendas. This enables partners to translate their practices or mobilize their resources to adjust to the collaboration. As a result they also find that they often build credit in different ways and distribute outputs through different channels.

In the absence of existing common ground, collaborative agreements/frameworks often proved useful tools for building trust and understanding. Gordon Knox made it clear at the Montalvo Summit: 'I put a lot of work into persuading companies why they might value having artists. There is nothing at the start; no dialogue. The reason why I am interested in the contract as a model is that it creates enough value to start the dialogue (...) It allows overcoming anxieties that may not necessarily have any real world consequences.. So contracts are seen to relieve anxieties, especially when one of the partners involved is a company'. However very tight or imposed legal constraints, especially IPR agreements, might also generally reproduce asymmetries in power relations as they tend to protect the values of the commercial actors who enforce them.

The idea is thus to find solutions that can retain the power of transparent legal frameworks without their over-formalisation. As Bronac Ferran put it neatly: 'Do we need to go as far as contracts? (Montalvo Summit) *Memoranda of understanding, manifestos, guides of best practice* or other 'tool boxes' – all terms avoid the language of ownership and property – constructed conjointly are solutions that allow partners in interdisciplinary collaborations to spell out divergences, common grounds and orientations – a process so constitutive of trust – whilst still remaining flexible.

Evaluating and assessing interdisciplinary collaborations

There seems to be an inherent tension in programmes such as Interact: although 'blue sky' in the sense of encouraging open-ended early-stage research, they also aim at 'knowledge transfer' across sectors which

implies that success criteria be defined. Julie Taylor of the UK Arts and Humanities Research Council (AHRC) described the nature of this pressure in the following terms: 'We are all hampered by a culture of success. The Arts and Humanities Research Council is in the middle of this terrain. We need to come up with indicators to show that research we fund makes a difference. We don't have the appropriate measures but there is pressure to find these. Issues relating to economic impact will not go away, for instance, but we need to also investigate issues of public and social value' (DIFFRACTION, April 4-5, 2006, Liverpool). At the same time, because of their interdisciplinary nature, these collaborations offer a challenge to evaluation. This is not only because participants value different outcomes depending on their roles. As James Leach remarked on a related Art and Science collaboration programme – see *Leonardo* volume 39, Number 5, 2006 – 'The first questions are about whether these collaborations are productive. But that is a complex question in itself, depending on where one sees value. As the scheme really is working with emergent technologies and new artistic ideas in new combinations, then it is a likely consequence that there is no ready-made context available in which to understand the outputs. They do not have a simple utility. In itself, the scheme is responsible for defining and opening up future areas of potential value' (Leach 2006).

Demonstrating success is made more complex by the fact that the benefits generated can be as much intangible as tangible, as will be shown below in relation to the specific case of these placements.

Tangible and intangible outcomes

Art works

Although funders and managers insisted that placements, being akin to research in their eyes, did not need to generate art works and exhibitions, both artists and hosts valued the production of tangible works: 'I didn't want it to be just a learning process; I wanted to give something back'; 'I'll feel better when I make works. I talked a lot but that's not my trade'; 'Works of art are our currency', artists for instance said. Although hosts valued the use made of their resources by artists *per se*, all cherished the prospect

of a work of art being created at the end of the placement – and this precisely because of its tangible nature. Because of their highly visual nature and of their 'portability', works of art indeed act as effective adverts for the companies involved.

New understandings

Changes in mutual perception and new understandings were more intangible outcomes of the collaborations. These included artists' new understanding of their own trajectory, but also applied to hosts. For Wayne Martindale, the placement quite importantly fostered a critical reflection upon his own discipline and activity: 'Science is a planning and deadline based profession; very different from that of artists. It almost surprised me that artists were creative and that opened my eyes (...) They are creative because there is no boundary to the creativity. A chemist, by contrast, will not consider too many things outside his initial scope. At this moment where education is becoming very prescriptive I am asking how you could introduce this wild card? Education should be about opening eyes wide'.

New understandings and perceptions of one's collaborator are other valuable consequences of such interdisciplinary placements, almost of a 'civic nature' one could say (cf. A. Mendiharat, DIFFRACTION, April 4-5, 2006, Liverpool). Wayne Martindale again provided a good illustration of this process: 'Before I thought that artists didn't have a social role. I thought that they were a bit like my own profession; that it was all about personal development. Now I realise that their social role is incredibly important and they can change culture. I see the difference between social issues and cultural issues now. I realise that many issues regarding the environment are not technological, social or commercial problems but cultural ones and that we need to act on what people *think*'.

Relationships

Relationships *per se* are another 'intangible' outcome of the placements. They were valued by all participants, even if only for the indefinite benefits they could yield in the future. Across interviews the hypothesis was formulated that the placements

could foster or strengthen various communities: a *community of funding bodies and brokering agencies*; a *community of artists* participating in the placements; a *community of hosts*; but also more *specific networks* depending on each placement. Most participants in Interact indeed saw the placements as an opportunity to consolidate or create partnerships relevant to their particular activities, between labs and universities, or firms and localities, for instance. The nine months allocated to the evaluation did provide an opportunity to assess the extent to which Interact activated or supported these communities. One could nevertheless observe that all the placements covered by the evaluation lasted longer than

they were intended to, precisely because artists and hosts came up with follow-up projects or generally wished to extend the collaboration. They were also well aware that they would remain mutual sources of advice, information and recommendations. This points to another challenge in the evaluation of interdisciplinary collaborations, which is that their effects are not only sometimes *intangible* but often also *deferred*. This opens up new lines of inquiry such as the institutionalisation of interdisciplinary relationships and how temporary communities of focus become more enduring ones.

1. Further information about the programme, a full copy of the evaluation report and details of each placement to date can be found at <http://www.interact.mmu.ac.uk>.
2. <http://poorbuthappy.com/ease/archives/2003/10/31/1860/taxonomy-is-a-boundary-object>
3. See full Interact Evaluation Report at www.interact.mmu.ac.uk for a more complete description

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Meeting in Montalvo – Models of Ownership and the Challenges of Contemporary Creativity

By Bronac Ferran

Montalvo Arts Centre nestles in woods near Saratoga, southwest of Silicon Valley in California. It offers residencies and studios for artists from all over the world to develop new work. For the past year its Programme Director Gordon Knox has been working with Arts Council England and others setting up innovative artists' placements within US technology companies including ADOBE, IDEO and Sun Microsystems.

In August 2006 a small group of specialists from academic, commercial and public sector backgrounds working in anthropology, art, design, law, science and technology convened for two days' brainstorming to address one organising question: 'how do you map ownership over the world of contemporary creativity?'

The differences between members of the group led to an often intense and divergent discussion, but during the two days and in advance of a public presentation at Santa Clara University the following themes and topics emerged into focus:

Models of Ownership / Value of Closed and Open Systems / Safety-Risk / Partnership-Asymmetry / Process-Objects / Collaboration-Dissent

Participants were asked to respond to the question of how models of ownership mapped onto their own specific practice. We include here an edited digest of viewpoints that casts strong light also on the theme of this book.

Ferran: Running a series of artists placements in industry currently we are asking ‘where does value lie in the transaction across disciplines?’ We’re also trying to find out what is the minimum skills and knowledge exchange that can occur within each placement and asking what each partner can bring to the process. We’ve developed a three way agreement model that sets out expectations and responsibilities of all the people involved. These aren’t legal contracts but terms of reference and undertakings to hold partners on course. We aren’t interested in working with companies, however, where they want artists to sign non-disclosure agreements as we wish the knowledge obtained in the placement to be made public given our public funding remit.

Knox: Yet having good fences makes good neighbours, and being able to retain control over information and where it goes can make for an increased flow of information.

Cisler: The whole idea is that the commons is an enclosure, so if you’re inside you’re very privy. For the majority of research in my field a non-disclosure agreement is necessary.

Banerjee: The design field has changed a lot; the landscape in which our clients exist has changed rapidly. Most of our clients are European and North American and most of them are successful because of a solid system. Now the buzz word is innovation because everything they’ve been good at is being challenged by India and China. Therefore the only way to stay ahead of the curve is to be innovative and get an edge. So we’ve been in conversation with people at large corporations and they are anxious about how to take these established companies and make them innovative. They come to us and they realise that innovation is followed by IP, because if you innovate and come up with ideas, you have something you need to protect. The bigger crisis that this brings is that they know that their competitors are also coming to us, so they want a signed contract saying we cannot work for their competitors or let others use our innovative ideas. We cannot do this because then we are writing ourselves out of business since everyone is asking for the same thing. So this is a tennis match that we have with every contract. We ourselves are confused because on one hand we recognise the ownership of ideas; we live in a culture where ideas are very coveted and seem to be a big thing. But, as designers, we know ideas are a dime a dozen. What is really hard to do is to take any given idea and make it real – that’s where the difficulty lies. So it annoys us when there is an idea and it gets written up in IP law, and then someone becomes successful because they made it legal, but they did not make it real by doing anything with it.

Malina: I work in academic research and on a very large satellite project that is publicly funded. We have a scientific team of

about 100 people. But there are three threats to our security. The first is that there are different science groups working for the same funding, so we don’t want those ideas (and then funding), going to other teams. For that we have a publishing team that makes sure nothing is leaked out. Second, because this is such a large project we need to bid out to other companies, meaning we have to sign agreements with them. For this we have mechanisms in place to make sure the things we learn from one company are not leaked to another company that might bid for this type of contract. Third is that this is an international project. I work in France, and there is certain US technology information we don’t want the French to have and visa versa. These strategic technologies cannot be leaked or else we would get shut down by the US government. Thus we have a mechanism in place where as soon as something is put in public domain as tech information, it is no longer constrained but allowed to be shared. So, we have an environment with protective mechanisms in place for these kinds of threats. The advantage is that since these mechanisms are already in place, any issues that come up can be resolved immediately. So, do you have a mechanism by which to address issues of insecurity immediately? This builds a sense of a safe space.

Glancy: I work with the auto industry, and we’re creating a new communication system. That is a development of technology so there is lots of IP involved. And they are having problems interfacing with social science ideas, such as privacy. So I was brought in to open their eyes to the fact that they need to be imagining their customers, and it has been difficult to get this collaboration going. It illustrates exactly this problem with industry. The Department of Transportation is very open, but the industry itself is closed. I was also part of a group that met at the University of Texas discussing surveillance. There were two lawyers in the room, and the rest were social scientists and artists of various disciplines. It was interesting because everyone coming to the meeting couldn’t imagine what the others were there for. It took nearly a week for participants to feel safe speaking without any judgments.

Nafus: It’s never quite clear what is going on, what is open and closed. Because I am a social scientist I am supposed to publish in public journals so there is nothing that is proprietary. How it gets back into the organisation is not clear in terms of what is disclosable and what is not.

Malina: We assume that networks are symmetrical, but they’re not. Egyptian scientists said that data being free and accessible is only in the context of defining the symmetry of that relationship. So one person’s privacy is another person’s cultural piracy.

Banerjee: There is a huge asymmetry, because artists aren't worried about IP being stolen but companies are. There is an asymmetry, which gives one person a key to a door that the other person lacks. The people who have more to protect are the people laying down more of the terms. Industries also say they want to collaborate with others and they don't know how because IP is getting in the way. Because they realise that lots of interesting opportunities lie in collaboration – collaborations that they themselves have built walls around. Another word that goes along with trust is security. What makes people fight over owning something instead of being generous? It's being uncertain and not knowing, so they want to increase the odds of maintaining stability. We deal with this issue by trying to break that apart – let's pretend we are completely secure and we'll see what happens. Then you realise that it's possible to create in a microcosm, you can create a little sub-culture or moment of time – where you are collaborating in a fashion where 'who the idea comes from' doesn't matter and there is a sense of abundance, where there are lots of ideas and what we share is most important.

Ochoa: Many lawyers see themselves as facilitators to create legal structures that allow you to do what you want. The question is: what do you need to create a safe space for? Safe from what? It is important to define what the problem is. Security is a real issue, because people usually want to keep their internal work secret in order to preserve flexibility down the road. The truth is that they probably don't need maximum flexibility. If the issue is ownership or profits, then you have to define who should own what by contract. As a lawyer, I have a strong knowledge of what happens in the absence of an agreement or contract, and most of you won't like what happens when you don't have one.

Carlson: But there is a question of what is meant by safety: safe from exploitation or safe in the sense of safe to fail even in a corporate environment? There is also the issue that it is often not the actual outcome of a collaboration that makes the problem but what people perceive this outcome could be: millions of euros for example... which is extremely rare! To work on mutual perception and discuss that at the start may be important in such art and industry collaborations.

Leach: And trust doesn't mean sentimentality. Exchange is about taking things from other people. So maybe trust is more about oscillation in a relationship, sometimes one group will benefit more, sometimes the other will. It is all a part of ongoing relationships. The trust needs to be in the relationship having a future. Property is a way of cutting off a relationship. Asymmetry is in the kind of logic people bring. So property is straightforward, and works sometimes. But we should throw in a challenge to codes and legal codes, because it has the potential to cut off relationships, as it puts an artificial constraint on

relationships. Objects are things that people have relationships around. What about thinking of a way to ensure that people who have common interests in certain objects that are produced have access to them, so that you can think about the future of the relationship?

Ratto: Another benefit to this is that a lot of these companies think in terms of objects. So, to reappropriate the language of the technologists might be a functional way of bringing these people together.

Leach: I mean objects in a broad sense, like a common defined interest. Not necessarily a tangible object. The moment of me wanting the idea is the problem at the fundamental level.

Malina: Let's come back to the safe place/dangerous place discussion. Clearly there is this idea of reputation, and you want to be associated with things perceived positively rather than negatively. But also, the value of dissent needs to be high enough so that dissent is not dismissed. How do you facilitate dissent so that it's a strong value? Part of the concern in science collaborations is that there is a huge push towards consensus. So the dissent issue becomes very important.

Banerjee: So isn't the issue the potential for conflict, and the severity of the conflict? For example, right now we are sharing each other's air, and we're not worried about the air, but maybe about personal space. Perhaps the more people use the idea the more fulfilled they will feel.

Ferran: Most of the artists we are working with seem to feel that they are oppositional. They want to be there because they are not the same, and that's great. The law was initially framed as a protective measure, and you need to establish social codes, so let's not deny that. The likelihood that there is conflict is quite positive. It's whether you need to go as far as having a contract, and is that contract going to be enabling or hindering?

Ratto: One of the directors at the San Diego Supercomputer Centre said that they have been told by their funders that they have to engage with social scientists, humanities scholars and artists. One reason is because they are considered to be a national resource and there is recognition that the arts, humanities, social sciences constitute practices that are important to the nation. The negative reason is that supercomputer resources are stuck with a lack of innovation, and looking for new customers. The other problem is that the types of knowledge practices in fields like astrophysics cannot be easily shifted to humanities.

Banerjee: Social Science fields are getting more attention than ever. At Stanford they are starting the *D* (for ‘design’) *school*, and the concept is that there are all these different disciplines, and this is a school that sits horizontally across them. And they work collaboratively to work in the spaces between fields. Many people are shifting from a knowledge based culture to realising that it pays to heed what makes society and humans tick at the research level. With funding, you have to see what is relevant, what will be used in society. People are realising that the application of technology has everything to do with how it affects people’s lives, making social scientists very important. Tech people may not be very concerned, but those who see the way industry is changing are.

Ferran: Do any co-ownership models exist? What would you need to do to find that hybrid?

Knox: The question is interesting because it goes back to creating a place where you can have artists and industry working together. The idea of the *D school* and the expansion of opportunities and possibilities that social sciences can bring to a project. What you see is a much larger context and environment of ideas and intellectual advancement which may have some patent iteration, but it really comes out of a cloud of discourse. So would it be possible to use this idea of teams legally if they are multidisciplinary?

Ochoa: Legal rules are generally default rules. There are some legal rules that can’t be changed, but usually the law has flexibility. But in order to take advantage of that flexibility, you have to come up with the arrangement that you want through contracts. The law has models for different types of innovation. Scientists are used to the patent model of innovation; artists are used to the copyright model of innovation. So we need to find a hybrid between copyright and patent so that both parties are comfortable with the collaboration.

Glancy: You would decide within the team how this works. Digital art also requires the use of patented technologies at times. And that’s a type of collaboration that goes on fairly routinely.

Leach: My objection is the slipping into commodity as the only value. Because money is the thing that lubricates relationships and that’s a misconception. What makes relationships happen is what happens in them. So the oscillation of relationships is where value lies and that is distorted when all value is boiled down to money.

Atkins: An emphasis on outcomes promotes the commoditization of everything. But I wonder what good processes are in

this instance and that in general if you ensure a good process, you will have a good outcome.

Banerjee: One of the issues in the discussion is that there are two levels, one highly tactical and the other a much more aspirational idea of what it should be. Are we interested in how artists can be placed in agreements or are we after how this can be approached in the first place?

Ratto: We need to figure out a way to link these two things. One of the issues it comes down to is that we need to construct a language that incorporates different notions of what values and objects are, as they may be very different things to the different collaborators involved.

Malina: Often we imagine collaborations as fixed entities, when in fact one of most valuable things about collaborations is the ease at which people can come and go within the collaboration. Also, it is ok to have partial buy in. It is often assumed that everyone must sign on for a full project, but it is ok if you only agree with a part of the project, and often that’s an invisible value. That you don’t have to buy into the whole object to contribute is important, and often invisible. The IP problem is how you recognise those people (partial buy in). So in terms of valuable processes, the partial buy in and value of being able to go in and out gracefully is very important. For example, at my organisation we have a very successful method of having students and post docs come in and out of our collaborations very gracefully, because we have a recognised mechanism for short-term entry and exit.

Banerjee: The moment you forget the endpoint as something tangible, you don’t need these definitions. There are times when a company says, ‘Teach us how to be innovative’. This is different, because the objective is not to come up with ownable ideas, but to get new ways of thinking, of processes. That is an abstract outcome, and makes it much easier to get everyone on the same level and happy about the outcome.

Glancy: When you deal with deliverables, it does get people to agree on their expectations of what the enterprise is.

Malina: Bronac and I have been working on place-ments, and we’ve resisted defining deliverables. It’s intentionally not defined. Somehow there’s a belief structure that it’s important to create time and space for artists in a scientific environment. One way I would measure success is if twenty years from now an artist created work from their experience. So that means the belief structure has to be very resilient.

Ratto: Have you built in processes of dissemination so that the value is a shared value that extends outside of these collaborations? I also wonder if creating this kind of process would create accountability. So that accountability for the artist and the company becomes codified within a document.

Knox: The larger issue here is the exchange and circulation of ideas and the intersection of different fields of knowledge, and that's where the benefit lies. Recognition of how these intersections are useful is an important part of best practices.

Ochoa: If there are lots of benefits to collaboration, what is keeping you from collaborating? And what can I do to assure you that the negative outcomes you fear will not come to pass? Part of the issue is your notion that not all value comes from commodification, but many people come from that way of thinking. And I think one of the things that people are afraid of is that the benefits that come from these collaborations will be realised in a monetary way that they will be left out of.

Carlson: There is also the question of measurement – what are data for different disciplines? Some of them are quantitative and formalised whilst qualitative data are often based on tacit knowledge. And at the other end is the question of what is the incentive to collaborate? We are talking about legal and technical solutions but another is social ie reward mechanisms. Many of these will still only promote the notion of a singular author and big projects but what about little contributions on the open source model. When government grants or publishers will reward collaboration and the contribution of discrete ideas then there will be incentives to collaborate. We might want researchers to want to collaborate before addressing questions of how to technically or legally do it.

Banerjee: Precedence in my area is that if you are your own organisation then you have complete control, but if you are collaborating with someone else then in this case you have an argument for credit in terms of reputation – but not in terms of sharing profits unless it's agreed on in the beginning, and it's hard to do that because of the awareness of what it is that creates success. You can come into an establishment, have a great idea and walk out the next day. But, then it takes that company time to achieve the capability to implement that idea. That's how it works in the field of design. And I am surprised that when it comes to an artist community – where the odds that they will work within an organisation and have a huge benefit are a real long shot – that these issues are brought up. So the way to talk about it is to talk about the value of the collaboration itself. I care about this issue because I think designers are a step closer to working with industry than artists are, and

we are constantly trying to communicate our ideas to them in a way that will resonate. And I think there are two types of designers: those who are highly collaborative and those who are about sole authorship. How do you take a company that doesn't think they need you to coming round to see this? With artists placements in industry you have to build elements of benefit to make them see. You are looking at creating enough value to create the dialogue, which is why the design contract as a model is interesting, because it starts to define the shared values between two people who might not necessarily – at least one of them – have a sense of any benefit. The key issue must be the dialogue and the conversations.

Ratto: We keep talking about property but actually there is an issue of ownership that we should go back to. In my social science research I've seen investment and engagement as a type of ownership. An engagement model rather than a property model would be more useful. One thing I thought of was the crafting movement that has had a very different type of openness because the objects are different. And I mean this creation of shared resources for crafting...if the shared object is collaboration then you have a very different set of values.

Leach: What we are doing here is relocating creativity within social networks – yet the notion of creativity as it is used currently everywhere is as individual mental act – which leads to the belief that the individual owns rights to what is created.

Ferran: But it often seems like creativity is located 'out there' as an abstraction

Knox: We as a species are completely dependent on the ability to exchange and move ideas around. Creativity is initially located like air: it's a common shared element and what we need to do is move it away from being used as an individual act to a 'resource'.

Ratto: It's exactly the idea that it's a resource out there that is the problem.

Leach: If the only way to recognise the value is an individual's claiming of it, this is the central problem.

Ferran: We're hearing that creativity is 'between' and 'in the space': therefore it's about social engagement and interaction.

Glancy: The kind of creativity that you are interested in is something that does not have an object or an end, it's ongoing.

Leach: But objects are involved in the process and it's when claims to those objects interrupt the flow that problems arise.

Knox: And the problem therefore is trying to define this element with language about IP. And I think that is the crossroads that is interesting.

Malina: I think it's a mistake to describe a collaboration as an object because then you have to define the edges of it, and in my utopia, collectives are overlapping so you can focus your attention on some part of that network at different times.

Banerjee: From a pragmatic level what it amounts to is what are you willing to let go of – if you are afraid of a new landscape then you are holding back from exploring it – so maybe the real discussion is about what are you willing to let go of to try out new relationships?

Atkins: I think a central question is how we regard the new and that can change depending on what one loses and gains from it. The art historian Leo Steinberg said what disturbed people about modern art was that they felt a sense of loss, the sacrifice of detail, quality and the like. This sacrifice is easier to identify than the benefit. There is unknowability about the benefit.

Editors note:
For this précis we are inspired by the Josiah Macy Jr. Foundation symposia in the late 1940s and 1950s and particularly Heinz von Foerster, Margaret Mead and Hans Lukas Teuber, the editors of the Transactions of the 9th conference, on Cybernetics, in 1952, who say in their foreword: 'This is not a book in the usual sense nor the well-rounded transcript of a symposium...these pages should

rather be received as the partial account of conversations within a group, whose interchange extends beyond the confines of a two-day meeting. This account attempts to capture some of this group interchange in all its evanescence because it represents to us one of the few concerted efforts at interdisciplinary communication.'

The Montalvo Participants to whom our thanks are due were:

Robert Atkins art historian, activist, journalist, online editor and producer
Shilajeet Banerjee designer, design consultant, software engineer, mechanical engineer, architect and structural engineer

Samuelle Carlson social anthropologist with background in history of art
Steve Cisler librarian with an interest in information technology for knowledge sharing for social change

Bronac Ferran is a writer and researcher

Dorothy Glancy professor of law at Santa Clara University School of Law

Gordon Knox director of programmes at Montalvo, organiser, curator and writer

James Leach social anthropologist specialising in kinship, creativity, place/landscape and art

Roger Malina astronomer and editor

Dawn Nafus social anthropologist specialising in gender, time and technology

Tyler Ochoa professor with High Technology Law Institute at Santa Clara University School of Law

Matt Ratto social researcher specialising in studies of technological innovation, knowledge-making and culture

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~*worn*~ workshop Piet Zwart
Institute and V2_, 2005, photos by
the participants

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V2_ is interested in the combination of and relations between different media and between different artistic and scientific disciplines. It brings together artists, researchers, social groups and commercial companies, and initiates interdisciplinary working relations among them. The V2_Lab is its research and development department, the key areas of focus are: Interactivity and Immersive Interfacing, Wearable Technology, Virtual Reality. Besides commissions and self-initiated projects the V2_Lab offers artist-in-residence places and gives technical and production support to artists in their research and the realization of projects. Various models (workshops, expert meetings, long-term research groups, etc.) have been developed for the V2_Lab's activities, focusing on the exchange and combination of know-how and building an interdisciplinary workplace for artists as creative researchers. www.v2.nl

Art as Boundary Object?

By Anne Nigten

This essay examines two types of boundary objects from the electronic art laboratory, my daily work environment. It also takes in to account evidence from outside the electronic art field that is relevant to the issue of 'uncommon ground'. Contemporary electronic art and design practice has become a team effort where different backgrounds are brought together to realise a common product or experience. My PhD thesis investigated how electronic art is made¹, in order to better understand the process of interdisciplinary collaboration. The discourse and methodologies of other disciplines were investigated in as far as they support the collaboration process. The examples I give here refer in particular to anthropology, the performing arts and design practice. I have chosen to focus on the concept 'boundary object' as means of helping the various participants in a team with different backgrounds to build a shared understanding.

What makes electronic art practice interesting for other disciplines?

Artists today who work in interdisciplinary teams create a zone or conceptual space between existing disciplines or knowledge domains. This conceptual zone is a potential source of innovation. I call this zone or space *transvergence*, in line with Marcos Novak.² This zone serves as an 'interface', providing space for cross-disciplinary experiments.³ It can be seen as a conceptual 'space' for collaboration, interaction and innovation within a discipline. In the electronic arts field this is often motivated by the artist's search for new genres, novel forms of artistic expression and aesthetics through the exploration of interaction, technology or media. This relates directly to the concept of third space, a term which is frequently used in design practice. Collaboration enters the equation once the participants share common ground - or when the uncommon ground is revealed.

This essay looks at two cases in which the participants work on uncommon ground. Here the zone of *transvergence* is new for all those involved, and the first step in the collaboration process is to find the best methods, where knowledge is exchanged or borrowed from other disciplines to create a new practice. This approach also makes use of a hybrid (or third) space where the disciplines can meet and negotiate language, methods and aims. Susan Leigh Star⁴ posited the notion of a boundary object as a conceptual tool to facilitate the communication and collaboration gap between disciplines and knowledge domains. A boundary object should have enough flexibility to support communication based on different interpretations of the boundary object itself.

Two case studies

Two case studies from the V2_Lab illustrate two different functions of a boundary object. The length of this essay precludes a full description of the projects and teams, but these are well documented online.⁵ The first project is ‘~worn~’,⁶ a three-month workshop initiated in close collaboration with Matthew Fuller with the M.A. students Sasson Kung, Cheryl Gallaway, Dragana Antic and Tsila Hassine, of the Media Design department at the Piet Zwart Institute, Willem de Kooning Academy Rotterdam and V2_Lab in the context of the Dutch MultimediaN research project. The workshop was led and coordinated by Kristina Andersen. ‘~worn~’ was a hands-on investigation into cross-disciplinary design and the development of wearable objects of desire. The students came from very different backgrounds, including art, graphic design, architecture, mathematics and fashion. The workshop investigated which boundary objects or shared methods could facilitate a hybrid space for collaboration, play and circuitry: One of the tools used to encourage collaborative effort during the workshop was an amateur electronics kit. The ‘~worn~’ project was intended to develop new conjunctions of technologies and not to develop new technology per se. From a teaching point of view, ‘~worn~’ was designed as an immersive experience inspired by performance and gaming. The team members with a professional background in technology found it refreshing to work with the simple amateur electronics on offer. In this case, using the

consumer electronics as a boundary object created the *Transvergence* zone; something that is not completely unfamiliar to any party, yet which neither can claim to totally ‘own’.

The second example is the ‘Move me’ (work title) project by Thecla Schiphorst⁹, developed by V2_Lab as part of the research and industry based Passepartout¹⁰ project. V2_Lab explored, in close collaboration with the Centre for Mathematics and Computer Science (C.W.I.)¹¹, the potential of artistic research in the creation of new interactive human computer interfaces for the next generation of interactive television. The research proposes a different way of looking at the whole concept of interactive television, based on insights from interdisciplinary artistic research and development. The first result was a prototype application for an ambient multimedia environment as envisioned by Philips. This first prototype used pillows as soft objects for measuring one’s mood. This information then formed the parameters to trigger the ambient environment. The outcome of the first prototype was examined and the results were used by the V2_Lab to come up with different models and methods to engage participants at key moments of the interactive experience. The aim was to promote interaction not only with the system driving the experience but also with oneself and the other participants in the space. These interaction models were based on dramaturgy and movement studies from the performing arts. The research focuses on users in a way that went beyond the traditional direct push-button interaction model. ‘Move me’ is an interactive experience environment based on movement between soft, networked objects that cry out to be touched, stroked, held or thrown. ‘Move me’ creates a space that is ‘willing’ to explore social intimacy. The soft objects concept borrows from movement, somatics and theatre practice; the ‘behaviour’ of the objects and the software are inspired by Laban theory. Schiphorst’s soft objects are boundary objects that facilitate or draw the attention to the body’s system of *somatic awareness* through technology.

Unlike in the ‘~worn~’ project, the soft objects are boundary objects used to facilitate and materialize

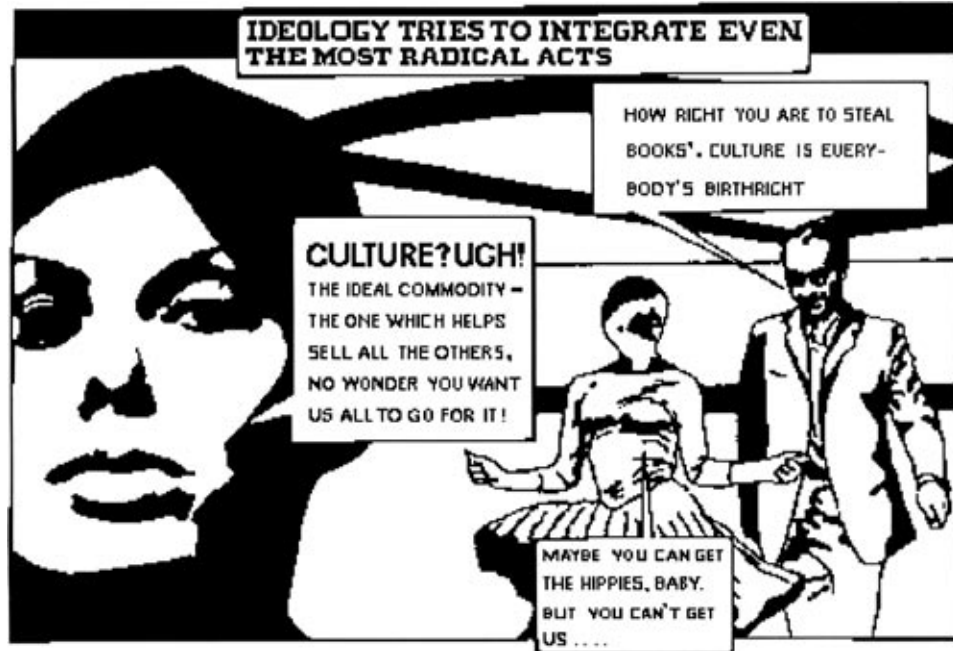
the experience. They replace a product, goal or task-specific application. The soft objects provide a zone where the participants (co-)create their experience, their personal narrative. A link can be made here to Mark van Doorn’s¹² work. Van Doorn refers to techniques from performing arts such as the narrative and dramaturgy as a connection between business and technology, where people can actively participate in the experience. In the Passepartout project in the first instance ‘the experience’ turned out to be too abstract to deal with from a technical perspective. For the first try-out of the project, several industry partners struggled with the design requirements for ‘the experience’ and found it difficult to stray from the framework of functionality programmes and existing interface design. However, when the soft objects entered the arena they brought along a mind-shift, an intimate and non-machine-like object replaced a remote-control-like device concept. During the design and creation process the electronic arts and performing arts methods were used for the

design and the experience. The soft objects and related Laban theory made up the zone of *transvergence* when the team commenced the project and the outcome was initially rather abstract for the technicians. However, once the soft objects were demonstrated (at least an early version of them) the objects were embraced (literally) and evoked very intimate behaviour and personal reactions. Evidence that electronic art is an effective way of bridging the known and the unknown. From here one could draw the conclusion that electronic art works well to bridge current technology appliances with the unknown.

Special thanks to my contributors:
V2_Lab team, Kristina Andersen,
Matthew Fuller, Thecla Schiphorst
and Frank Nack.
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Panel section from a May 1968 Paris poster (English translation) of the Situationist International: 'In Our Spectacular Society'¹

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A Pair of Doxa and a Paradox

By Sher Doruff

2. This could be construed as a paradoxically ironic ideology swap from anarchist Petr Kropotkin's Mutual Aid ideas on evolution.

'Doxa is opinion. It is what everybody knows or what everybody should know. It is common sense or good sense...' –Tod May

The inspired premise of 'Uncommon Ground' challenges the orthodoxy of 'common ground' solutions in the emerging domain of transdisciplinary, cross-sector research and development. It enters the debate over the ethically untidy fusion of academia, industry and the arts by respecting differentiated perspectives rather than uncritically convolving them into homogenised praxis. The construction and facilitation of cooperative solutions that propagate consensual 'common ground' in collaborative R&D is a tricky business. While transdisciplinary practice has obvious merit in stimulating discourse, initiating new methods and facilitating real time interaction between diverse practitioners, cross-sector collaboration is also tainted by the dubious history of the military industrial complex and its progeny – the military entertainment complex.

The notion of cross-sector convergence on uncommon ground acknowledges the complexities of situating diverse creative and analytical processes within a dynamic field of pragmatic market-driven experimentation. It perceptively retains the distinction between disciplinary 'forces' or players in a pervasive gamespace. Retaining the distinction emphasises the emerging relations, the interplay itself, between players in an Innovation ecology based on mutual aid.² A seemingly progressive step, this is a double-sided

coin. The intangible and abstract 'power' of creative processes and their affects, in this scheme, are now invested with a surplus value – branded. Creativity itself becomes a commodity. *Affect Incorporated. Creativity International*. Late capitalism effortlessly subsumes the ineffable.

On shapeshifting societal paradigms

Ostensibly, the cold war era ushered in a shift in the politics of power relations. The tendencies of 18th/19th century *disciplinary* rule advanced by Foucault were entering a state of slow dissolution. The top-down, hierarchical institutional enclosures endemic to these transient *societies of discipline* (family, school, military, factory, prison, hospital) began to seep outside their containments, spreading and disseminating their functions in more fluid ways. Capital begins to flow unencumbered, to trickle *between* enclosed spaces. Deleuze saw this shift from closed to open structures as a turn towards what he called *societies of control*.

In Foucault's *disciplinary society* (1977), each institution serves as an independent variable through which an actor/player discontinuously passes in life, leapfrogging from family to school to factory, each time starting from zero, from a relatively blank slate. Roles and realities separate into discreet life compartments. But for Deleuze, the institutional enclosures of the discipline society become increasingly porous and the control functions that manage it take on new affect as they seep out-of-bounds. Disciplinary societies '[...] are molds, distinct castings, but controls are a modulation, like a self-deforming cast that will continuously change from one moment to the other, or like a sieve whose mesh will transmute from point to point' (1990). In other words, control societies are topological figures, continuous and multiple transpositional vectors rather than positional points.

Can we now imagine shapeshifting tendencies in power relations from top-down to bottom-up, passing from discipline to control through the spectacle of gamespace? For both Foucault and Deleuze, control no longer emanates from a dominant outside power but *emerges* from the subject and is self-varying. It modulates an affective in-between; modulates the relation itself. As a porous capitalism leaks from closure to openness, from local to global, it nonetheless folds disciplinary structures into its complexity. Institutions don't disappear, they mobilise and globalise even as power is potentialised in the local node or individual. *Controls* then, are the modulators of a society that finds spontaneity and playfulness advantageous. And therein lies the truly confounding bit. Late capitalism thrives on difference and the production of variety. It rewards improvisation and exploits affect. 'Capitalism starts intensifying or diversifying affect, but only in order to extract surplusvalue' (Massumi, 2003). But Massumi also offers another more optimistic angle: 'It seems to me that alternative political action does not have to fight against the idea that power has become affective, but rather has to learn to function itself on that same level – meet affective

3. See wikipedia for a comprehensive definition of the creative industries: http://en.wikipedia.org/wiki/Creative_industries

modulation with affective modulation' (Ibid). Is this then the role market-driven interdisciplinary research creation – the affective modulations produced by uncommon ground – sees for itself?

Problematising uncommon ground

Is capitalising on the primacy of 'the process' in creative collaboration itself problematic? Can it fuel the emergence of bottom-up artistic tactics from a meta-structure of top-down corporate, economic strategies? When creative processes themselves, irrespective of any tangible product, are market-driven (though conventional product is generally forthcoming), the subsumption of alterity into the cogs of the system tends to transgress the dimensions it fosters. The implications can be commendable or despicable, depending on the orientation of the player-slash-collaborator.

Problematising collaborative, cross-sector effort is in itself a useful endeavour. Arguably, that is the current phase of this ideology. Problematising charges the unpacking of structural complexities with a vital, almost refreshing exuberance. As Uncommon Ground parses the problematics and complexities of cross-sector creative practice through case studies and investigates the pros and cons of inter-institutional alliances, it must also weigh the affects of difference-crunching in collaborative compromise. Contextualised in this way, dual interpretations of the term 'collaborator' come to mind. They are worthwhile exploring through common sense (popular opinion) doxa.

Doxa #One: To Collaborate – Working-together is fruitful

The prospects for knowledge transfer between disciplines and sectors are encouraging. The historic compartmentalisation and demarcation of academic disciplines has rigorously stifled, for many, hopes of affective interplay within the ivory tower. That sectarian protectionism of expertise is dissolving in spite of itself is a matter of debate, and the question of whether the University is capable of forging interdisciplinary relations within its midst remains open. The exponential growth of non-academically credentialed research centres and the migration of personnel between these domains is evident and healthy. Financial support for collaborative transdisciplinary research from industry and public funds that enable trust-building allegiances and path-breaking discourse between sectors is certainly a way forward. ICT frameworks further enhance the possibility for meaningful exchange. The premise of creative industries³ engendered collaboration employs all the bells and whistles for nurturing productive and original intersects between practitioners and publics of all stripes. Shared lexicons and methodological mash-ups emerge from transdisciplinary co-operative engagement. All good news. There's enough unpredictability in

4. 'Akin to, and largely responsible for the sweeping changes in our industrial-military posture, has been the technological revolution during recent decades (...). D.D. Eisenhower, 1961, 'Farewell Address'

the mix to keep it exciting. And after all, earlier examples of cross-sector pollination between, for example, the military, academia and industry have given us the Internet, the primary tool (weapon) for wide-scale, pro-active knowledge transfer/exchange as well as a platform for tactical intervention. That the enabling platform is a shared infrastructure for all interest groups is an unruly and fascinating feature of a mighty panopticon. Take a step onto the slippery slope.

Doxa #Two: To Collaborate – Sleeping with the enemy is questionable. Warning flags over the co-option of a co-operative social meshwork have long flown from disparate political, philosophical and artistic camps. The usual suspects, Debord (see illustration), Foucault, Deleuze & Guattari, a host of critical theorists ... and even the outgoing American President Dwight D. Eisenhower, a Republican ex-general, who advised in a 1961 speech: 'The prospect of domination of the nation's scholars by Federal employment, project allocations, and the power of money is ever present and is *gravely* to be regarded.' (emphasis added)⁴

The breathtaking speed with which the academy, the arts and the commercial sector have converged under the wings of Creative Industry values is indeed remarkable. It builds upon already established marriages of convenience ramped up by the Cold War military-industrial complex and the ever-emerging and frighteningly robust military-entertainment complex that generates much of the technological protocols and kit used by independent producers (artists, designers, activists, researchers) as well as a fair amount of content. It's convenient to turn a blind eye to the sources and referents that fuel AND siphon creative activity under the broad umbrella of the technology sector that services society.

While the role of the artist can never be contained in a generic '*ism*', the practice of art and design often provokes surprise, shock, nonconformity, disorientation, eccentricity, marginality, activism, etc., etc. Any assumption of a uniformity of creative intention kills whatever life is left in the idea of artistic activity. In the new creative industries paradigm there is collusion between the gods of capital and power and their academic/artistic antagonists. Collusion, like collaboration, carries both negative and positive weight, spanning interpretations from agreement to betrayal. It could certainly be argued that the line in the sand between arts/academic creative practice and commerce is washed away with every incoming wave. Are 'collaborators' in this complex gamespace double agents, idealistic entrepreneurs, self-serving pragmatists, proto-post-capitalists, enthusiastic 'creatives' looking to pay the rent, all of the above?

The Paradox of collusion

At times, transdisciplinary intersections are at their most functional when they are superficial and informative, a simple transfer of knowledge. Start-from-scratch, bottom-up working-together initiatives are more compelling. They celebrate a pioneering indeterminacy while risking invasive interpenetration. The co-creation of knowledge rather than merely its transfer is the issue. It's both laudable and frightening when one considers the collusion of the players and the scope of the game. The playfulness of art and design research/creation has much to offer in the open discourse and shared praxis between rigorous scientific methodologies and the crapshoot of entrepreneurialism. But that same playfulness, the dynamic relations that emerge through interplay, have already been subsumed by the system and are driving it. An alert awareness that the ontology of play and interplay in this uncommon ground has shifted is an important mnemonic. McKenzie Wark expresses this well:

Play was once the battering ram to break down the Chinese walls of alienated work, of divided labor. Only look at what has become of play. Play is no longer a counter to work. Play becomes work; work becomes play [...] The utopian dream of liberating play from the game [...] merely opened the way for the extension of gamespace into every aspect of everyday life. While the counter-culture wanted worlds of play outside the game; the military entertainment complex countered in turn by expanding the game to the whole world, containing play for ever within it.
– GAM3R 7HEORY

The navigation of uncommon ground, as an exploratory activity, as an affective modulation, illustrates another emerging dimension of a control society. That we seem to have entered this dimension without so much as a hiccup offers some clue that as a movement, it plays by the rules. The pervasive gamespace it inhabits generates the constraints and conditions of play. But the more ideological the 'experiment' becomes, the more entrenched in market-driven values it becomes, the more downright scary it becomes. Perhaps that's giving this 'trend' more influence than it deserves, as it is itself a by-product of runaway globalisation.

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Orchestrating Uncommon Ground

By Caroline Nevejan

Introduction

Since the end of the 1980s I have been involved in creating 'networked events' in which the managing of differences and the orchestration of uncommon ground was the focus of my attention. During this period a number of these key events were realised at the Paradiso, a musical venue of international renown in the centre of Amsterdam, which structurally investigates new developments in music as well as the social and economic circumstances from which these new artistic developments result. The methodology of Paradiso, which has a capacity in finding and staging new subcultures, is based on emphasizing the care for the 'direct experience' of both the performer and the audience.

As a member of staff of Paradiso I had the opportunity to initiate and produce events that drew on this collective expertise embedded in the organisation and to develop new kinds of projects which combined and agenda for social change with an emergent networked aesthetic. I have called them 'networked

events'. In this essay I am referencing two events hosted by Paradiso, The Galactic Hacker Party (1989), and the Seropositive Ball (1990) as examples of networked events. Both happened before the Internet became a hype and interfaces made the technology disappear, which explains why some of the issues surfaced in a rather 'raw' shape.

The Galactic Hacker Party and the International Conference on the Alternative use of Technology Amsterdam (ICATA '89) were alternative names for the same event. The programme featured very solid and serious debates and also convened the hacker community. It was explicitly designed as an event at which different technology orientated communities would meet. We even sent out different press releases to resonate different discourses. In hindsight, the Galactic Hacker Party/ICATA'89 can be understood as a conscious design of uncommon ground.¹ This 'networked event' brought about new connections between people, allowed new insights to be

formulated, and inspired the development of XS4ALL and the Digital City, both highlights of the Amsterdam and European Digital Culture in the years to come.

The Seropositive Ball was a networked event that lasted 69 hours non-stop. It was a shadow conference to the World AIDS Conference, which was held the same days in San Francisco. Because people with HIV and AIDS were not welcome in the USA, both the Paradiso gathering and the especially designed O+net, offered a way to show commitment, share feelings and insights, exchange knowledge and art, and express political views for the many people involved. The O+net was also accessible in some of the AIDS wards in Amsterdam as well as in San Francisco and New York. The O+net was a 'demo' for a planned HIVnet: it offered an easy intuitive interface (the world wide web had not yet been invented), mail and newsgroups, a first online art gallery and many knowledge sources. Participants, contributors and organisers of the Seropositive Ball came from ACT UP, self-organisations around HIV and AIDS, the arts, the sciences, the medical establishment and political bodies. Dramatising the differences in relation to the uncommon ground of HIV and AIDS at the time, as well as finding the common ground between all involved, were the key focus of our attention and were a great concern all along in the creation of this networked event.²

Both the Galactic Hacker Party and the Seropositive Ball facilitated a first time 'technology network experience' for many of those involved. At the time Internet had not yet become a mass medium, many things had to be invented 'on the fly'. In this text I will elucidate some of the issues to be addressed when orchestrating uncommon ground in a territory that is barely perceivable at the time.

Designing Networked Events

The goal of designing networked events, including the applications that were developed, was to create meaningful interactions between the participants. Meaningful in the sense of the context of the theme, issue or situation in which the event or application functioned. The ambitions were to ameliorate understanding, express commitment and facilitate

interaction. By facilitating debate and conversation, by orchestrating the network, a political space was created in which issues were formulated and reformulated. In this sense 'networked events' can be understood in today's political climate, in which people's democratic participation is increasingly 'issue' based and forms itself only at certain moments in certain places (Marres 2006).

When designing events one has to provide a space in which a person can formulate his or her experiences offer elements that will facilitate the historical contextualization of these experiences. The characteristic of these processes is that participants will influence what happens and contribute to things that cannot be foreseen.

It is like organising a party: The infrastructure has to be there, one can put a lot of care into extra ingredients like food, an aesthetically-pleasing, exciting environment, music, maybe even a performance. But whether the party will rock, whether the party will become an event that people will refer to as 'meaningful' to their lives, is impossible to predict. The quest is to create good infrastructures in which people can act, be challenged and be satisfied.

The Galactic Hacker Party and the O+ball, were marketed as conferences and festivals. People had to show up at the door and buy a ticket to be physically present. People who attended via the network were invited by publishing the details of how to access the online environment. Networked events are complex architectures consisting of presentations, exhibitions, performances and debates, which take place online and offline. Gathered from a variety of countries and practices, the assembled community should be able to acquire insights and perspectives by talking to one another formally as well as informally, seeing each other's work and debating it.

A networked event operating in the public domain must be rigorously conceived and evaluated. This evaluation differs from the way a scientific experiment is evaluated. Audience response and participants' involvement is not measured, it is 'sensed'. It is frequently founded upon confrontation with one's own practice and the work of others in ways that

triggers deep conversations. The ‘contextual reflexivity’, which was present in these events, could be a useful additional perspective for those seeking insights into the early development of digital culture.

The creation of good infrastructures is an art in itself. It requires a great deal of technical awareness of technology, finance and the behaviour of crowds. It also demands a grasp of cultures at certain times and places, as well as an understanding of how those cultures may clash. ‘Culture’ is used here in the broader sense: the culture of a class, a scene, a gang, a region, and an ideological or religious group. One has to understand how a culture wishes to express and exchange, and how it can transform itself in relation to other cultures. And one has to realise that the designed event or application is a small part, maybe only a moment, in the life of any of the participants. For this reason it has to be very clear why and how a person participates.

Creating a networked event is also about designing time. Dramatic events change our sense of time. A minute of pain or a minute of a daily bicycle ride feels very different in duration. Time can be very intense and time can just slip away. A choreography of time is vital when designing networked events and it is quite a challenge to connect online and offline encounters in a convincing way. This choreography offers the basis for the production plan that all those involved will work with: the technicians, the producers, the artists, the speakers, the network people, the bar and so on. Most important though is how the audience will feel. It is important to design dramaturgic timelines that take account of the different attention modes of the audience during a show. The time design of the physical gathering has to interact with the time spent in online environments. And when connecting online, one connects different time structures because people live in different cultures, each with their own specific time design.³

How does the physical communication relate to the online communication, how can we see what happens in the network and in the physical space? The design of natural presence, mediated presence and the design of how and when people can witness each

other’s natural or mediated presence all generate new issues of dramaturgy in communication processes that are only beginning to be explored. Simple questions have become hugely important: how to enter, how to identify, how to meet, how to show yourself, how to leave traces, how to find another person, and many more. In the design processes of networked events, which include the design of the offline as well as the design of the online environment, these questions have been experimented with and are addressed in a variety of ways.

Place and space

To understand why certain programmes are successful I turn to the distinction that is made between space and place in the social sciences. In general terms space is used for the literal coordinates that define a space. Place is the constellation of cultural and historical elements that are expressed in and attributed to a space. ‘Places are not physical containers of human presence, but the main expression of human presence itself’ (Spagnoli & Gamberini 2004, 49). It can be home, a special café, a good playground in a park, the houses of parliament or a school. Some places only exist online in chat rooms like MSN, in online games environments, in company intranets and in certain environments on the World Wide Web. All places are also space. Some spaces are also place. When one creates a good conference, one tries to create a true place. The culture of the participants has to be expressed through language, design and orchestration. Only then will a space turn into a place. When it really works, participants remember this sense of place, this connectedness between personal, social and historical awareness of one’s own life in connection with other lives, now, before and in the future.

In the context of a venue like Paradiso, the space is changed every time a new show is put on. The sense of place only exists in the specific time frame in which the show is held. In this sense Paradiso functions like a classical theatre. The laws of dramaturgy may be applied to the creation of the performance place. When organising a networked event, in which a new sense of place is meant to come about, these dramaturgical laws are also important. They not only have to

be applied to the performance elements of the show, but also to the possible participation of the participants. Many conference organisers fail to realise that they are not only staging a play; a conference organiser is also a ‘cultural architect’ or ‘cultural engineer’ of spaces in which participants have to be capable of creating their own sense of place.

When a sense of place has evolved, when people have experienced each other’s and their own sense of presence in a profound way, a conference or a manifestation can become an event that people will refer to in years to come to explain what happened to their own life as well as to developments in general.

Crucial network

When organising a networked event the question of who will participate is vital. If a public debate is to contribute to a subject it will not suffice to merely throw some opinions together. When creating a networked event, one also creates its participants, and every editor/speaker/performer will bring his or her audience as well. The ideal potential participants are those for whom the insights that may be generated may make a real difference, and these people have to be located and invited. It is vital to engage with them: Finding out where their interests, hopes and fears lie will suggest what kind of insights are necessary. A successful networked event is a gathering of ‘the crucial network’.

The concept of ‘the crucial network’ was inspired by Aristotle’s concept of ‘Complete Action’, which should be represented in every scene of a tragedy (Aristotle 384 BC, van der Ben & Bremer 1986). Aristotle formulates this requirement because he wants the audience to understand what happens. To present ‘the complete action’ all elements that can change the course of events and all elements that have contributed to the course of events have to be staged. This notion can be usefully applied to the design of networked events. Change is a dramatic moment in a process, when looked upon from a theatrical perspective. What existed previously will be different from what exists later. All those individuals, organisations and businesses that can change the course of events and that have contributed to the

current state of affairs, have to be present at such a moment. When significant change is about to occur, all the members of the ‘crucial network’ must be present for the change to have an impact on what happens next.

3d Point In the 2d network

Any crucial network consists of differences of interest, political positions, cultural diversity, and will include people who may not like each other. To be able to gather the crucial network an important principle is to identify what I would like to call ‘the third point’. It is a unifying point, a shared concern; it is often related to an ethical position to which all participants in the crucial network can relate. The third point, this ethical position, is often already part of the variety of relationships in the crucial network but not explicitly formulated. For example in the Seropositive Ball the third point was captured in the phrase ‘How AIDS changes our world’. It was a sentence that all participants in the O+Ball could relate to, and which also touched upon the bewilderment that most people who were involved with AIDS at the time felt. The fact that we added ‘Living with AIDS’ as a major driving force of the conference, made the first sentence all the more powerful. It provided a perspective that could be understood personally, socially and economically. It was important in enlisting the involvement of a wide spectrum of actors from people with HIV and AIDS, their friends and family, through to policy makers, the medical establishment, artists, writers and even US State Department.

If an event has an agenda the organiser will need all stakeholders at the table. The organiser will need to identify what binds them, and what it is that they all wanted to connect to. Taken together the stakeholders can be characterised as a 2D network, so to speak. In this 2D network pro-, contra- and balancing forces are organised. Habits and power relationships have been shaped over a long period. By formulating a point in the ‘third dimension’ that connects to all nodes of the 2D network, one offers a perspective for possible change. This concept draws on Sergei Eisenstein’s notion of the third point. Two lines of meaning, one in image and one in sound, generate a third line of meaning. When one sees flowers bloom

and one hears the sound of guns in war, a third line of understanding and meaning evolves concerning the atrocity war generates. The 3D point in the 2D network is intended to trigger a similar emergence of new meaning.

The third point evolves from the space-in-between the variety of nodes in the 2D network. In this intermediary space a shared social need is formulated. It is not an agenda from one perspective; it is the need that evolves from realising all the perspectives. This multidimensional concept of design is a key to success.

Structural conversation: contextual reflexivity
Designing networked events in theatres requires special skills, but some of the underlying concepts can be applied to and are relevant for the design of communication processes in many organisations today in which people of different skills, disciplines and cultures have to collaborate in moments of creation and in moments of change in online and offline environments. At such moments the gathering of the crucial network and celebration of the uncommon ground is vital for success as well.

To be able to identify all the participants in the crucial network and to identify where a ‘third’ point can be found, structural conversations are indispensable. In these structural conversations, a consistent building of an understanding occurs in whichever growing circles of participants, positions and practices are explored.

The relationship between ‘what would be good to do?’ and ‘how to do it?’ became one conversation. ‘How to do something?’ and ‘What would be good to do?’ are closely related terrains of inquiry, as Jeannette Pols also discovered (Pols 2006). Pols conducted an impressive study in which she followed nurses in a psychiatric hospital during their daily practice of washing patients. New accounting procedures were aimed at ‘streamlining’ the actions of the nurses when washing the patients. She found that the nurses actually had a deep understanding of what they were doing as long as they had time to discuss what was happening among themselves and with the other

people involved; in these conversations the different practices and the implicit knowledge came to the surface. She calls this process of structured conversation for understanding and adapting a practice ‘contextual reflexivity’.

’Putting contextual reflexivity into practice by telling stories to involved insiders as well as outsiders. Outsiders and insiders are both challenged to think for themselves and to become involved. Practice is not justified as good but is opened up to show tragic situations as well as best practices. Wins and losses can be compared and weighed; different ways of thinking can be mobilized to imagine alternatives. This might be an interesting way to help professionals and patients striving for something as complex as good care.’

(Pols 2006, 427)

Any practice has its internal contradictions and contradictory perceptions of what is good and bad. The confrontation between these visions and experiences provokes debates that can result in the adaptation of a practice. In the different organisations and companies that I have worked with, this ‘contextual reflexivity’ is organised in different ways. Some organisations use the knowledge of the people who do the work, others do not.

In my own experience the best practice of contextual reflexivity I encountered was at Paradiso. For over 30 years they have maintained a routine whereby every Tuesday morning production values and experiences are evaluated and every Wednesday morning programme issues are discussed. This would take time and demand new ways of working – relating to hospitality, production, technical infrastructure, and to how to communicate and to market – and these new ways will themselves be under debate later as well. People wonder how an organisation like Paradiso can remain up front and on the edge for so many years, how they can continually find new subcultures and new issues. In my opinion it is the process of

structural conversation that is responsible; a conversation that is challenged by inviting new people to join and to interact and to routinely search for ‘blind spots’ that have been created. The orchestration of those structural conversations is an important issue to tackle when gathering the crucial network. A group of people has to share some ‘common ground’ to be able to collaborate. This can be a perspective, the 3D point in the 2D network, it can be a shared morality, or a shared need to accomplish a task. When collaborating, ‘uncommon ground’ will also surface. One of the difficult facts about uncommon ground is that it highlights the fact that people often do not understand or even recognise each other’s language. This fundamental absence of a shared understanding, is called ‘incommensurability’.

Incommensurability

When faced with ‘interdisciplinary projects’ that aim to create new things or structures, the sharing of insights, the acknowledging of other people’s situations and especially other people’s language and conceptual lexicon becomes vital if one is to achieve even the slightest success. In addition to the exchange of respect, trust and responsibility, there is also the issue that people use the same words but with different meanings in different disciplines and practices. This is why the notion of ‘incommensurability’, the fundamental not sharing of an understanding, is of vital importance in collaborations. In both of my case studies the incommensurability between the different participants demanded a great deal of attention.

In 1962 Thomas Kuhn published his book *The Structure of Scientific Revolutions*, in which he analysed the way scientific paradigms change, and the way scientific revolutions take place. In his understanding the notion of incommensurability was crucial. In his essay ‘The Road since Structure’ he elaborates again on the concept of incommensurability. Incommensurability is one of the key concepts, according to Kuhn, which can help us to understand the development of science. It is one of the factors with which one can describe paradigm shifts. It also helps us to understand the implications of the

process of increasing specialisation that characterises the development of science; new fields of research with new taxonomies evolving over time. Kuhn refers to his own experience with the development of the life sciences; 20 years ago one department in one university started this field of research, and today the subject is taught in many universities with all kind of specialisations, which also develop their own taxonomies and which are no longer able to communicate with each other.

Kuhn writes:

’Incommensurability thus becomes a sort of un-translatability, localized to one or another area in which two lexical taxonomies differ. (..) Members of one community can acquire the taxonomy employed by members of another, as the historian does in learning to understand old texts. But the process, which permits understanding produces bilinguals, not translators, and bilingualism has a cost, which will be particularly important to what follows. The bilingual must always remember within which community discourse is occurring. The use of one taxonomy to make statements to someone who uses the other places communication at risk.’

(Kuhn 2000, 93)

The writer of a book and the operator of the printing press share taxonomy and at the same time there is incommensurability between the two practices, which may jeopardise their communication.⁴ They share certain concepts and certain materials. Both are concerned with a good representation of letters, both have a notion of readers and the readers’ capacities, but the processes that they undertake to accomplish their task are completely different. The taxonomies of the writer and the printer do not overlap because the acts that they refer to with the use of a word like ‘paper’ are very different. Also the variables (size, amount, time to print, time to write, price), which determine how an act with paper is performed,

are very different for the writer and the printer. Yet there is no incommensurability between them when looking at their work from the perspective of their product, the book for example. When the writer and the printer have to collaborate in the production of a book, they have to be able to understand each other at some point. When the writer and the printer discuss their shared product, which is the result of both their acts, they will need to have a certain understanding of each other’s practice to be able to judge each other’s contribution to the end product. They need a shared vocabulary and a shared understanding of the process and product of their work to be able to work together.

Boundary objects
Several strategies for dealing with incommensurability have been developed and have become deeply embedded in organisations and businesses as standard practices: the acquisition of meta-cognitive skills in education, the structuring of work by project management, and the use of boundary objects at the right time by contributors to the collaboration at hand. Given the space available in this essay I will restrict myself here to looking at ‘boundary objects’. ‘Boundary objects’ function at a specific moment in a production process in which a certain performance or presentation is made, to which all collaborators involved contribute and from which all the different experts, craftsman and others who each have their specific taxonomy, can derive input relevant to their own work. They function as ‘tuning forks’ for the various practices: the scale-model, the demo, the use-cases, the drawing, the mock-up, the pilot, the general rehearsal, the trailer, the production bible, the storyboard, the dossier, and others. A boundary object is meant to provoke discussion and in so doing it reveals flaws and misunderstandings between the different perceptions of the various contributors and their understanding of their contribution to the end product. In this sort of conversation the ‘How to’ and the ‘What would be good to do’ are at stake. In this

sense such conversations are a practice of contextual reflexivity. Using an appropriate boundary object at the right time with the crucial people (network) involved is key for success in interdisciplinary collaborations.

Orchestrating uncommon ground
Anyone involved in collaboration with others will have an image of those other collaborators. Whether it is informed by curiosity and attention, or whether it is just an uninformed stereotypical image, people judge each other’s presence in relation to their own. Moreover, people from different disciplines make different analyses of the same situation. Outside the bounds of their own expertise everybody is a layperson and will formulate ‘common sense’ insights about each other’s expertise. When two or more disciplines collaborate and the process is not clearly structured ‘common sense’ will dominate the process and influence the results significantly. The challenge for interdisciplinary collaborations that want to innovate is to transcend this level of ‘common sense’ communication and really encourage the variety of fields of expertise to work together even though the people involved do not speak each other’s language. I have always found it important to ‘dramatise’ differences when orchestrating uncommon ground. This has the effect of preventing ‘common sense’ becoming the dominant dynamic in a collaboration. To create ‘uncommon ground’ is a delicate process, in which all the layers of consciousness of a human being play a role. There are a variety of strategies available, only some of which I have been able to touch upon here. Underlying all these efforts, though, is the conviction that when embarking on a quest to design for social change and a better quality of life. differences are to be enjoyed and are highly productive.

1. Co-producers were Patrice Riemens, a social geographer specialised in north-south relations, and Rop Gonggrijp, founder of Hack-Tic network
2. Co-producers were Rolf Pixley (network), David García (visual arts), Heleen Riper (debates), Patrice Riemens (north-south) and Wil van der Meer (performing arts)
3. In his essay ‘Werelden van tijd’ (Worlds of time) the Dutch philosopher Hans Achterhuis explores how the thinking about globalisation is focused on the change of meaning of place, while the effects of globalisation on the experience and design of time are as distinct (Achterhuis 2003)
4. I choose to use the example of the writer and the printer because it is easier to understand than an example of incommensurability between a UNIX programmer and an interaction designer, or between computer people and the Paradiso technicians at the Galactic Hacker Party, or between the medical researchers and the people with HIV/AIDS at the O+Ball

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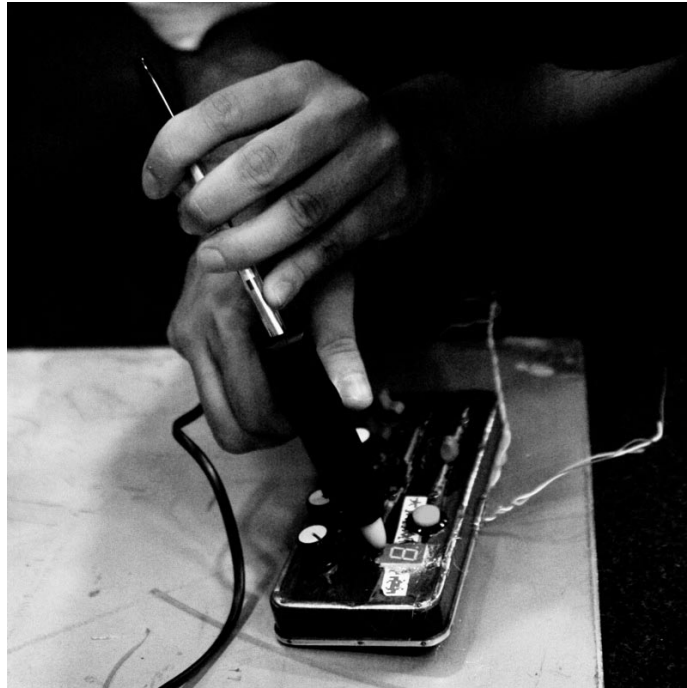
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Laboratório de Mídias Metarecicla-
das (LAMIME) workshops, photo
by Aoife Johanna Giles

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Bricolabs: a Network for Generic Infrastructures

By Matt Ratto and Rob van Kranenburg

Introduction

As the introduction to this book notes, there is an increasing need to conceptualise novel forms of collaboration and to explore diversity, heterogeneity, and difference as productive aspects of shared work, rather than as barriers that must be overcome. In this short article, we detail our own response to the 'uncommon ground' that marks current information technology development, and conceptualize a strategy we see as offering fruitful results. Our focus is on already existent groups of bricoleurs, public, private, and community-based creators focused on reworking, reusing, and repurposing the digital environment. These *Bricolabs* provide the possibility of cross-contextual knowledge exchange through sharing objects rather than sharing objectives or perspectives, and result in new kinds of linkages between business, education, media and community organisations. We describe how disparate groups and individuals around the globe are increasingly seeking access to open, available and changeable information structures in order to incorporate this diversity and heterogeneity. Further, we explore how open frameworks of knowledge exchange (generic information infrastructures) can result in a different kind of citizen than those embedded in the 'seamless'

infrastructures currently in vogue. Rather than attempt to 'open' closed infrastructures and pick apart the seams of seamlessness, we focus instead on articulating an alternative infrastructure, based on open modes of engagement. We see the practices of 'critical making' that this makes possible as resulting in new solidarities that can address issues of social equity and ecological sustainability and as necessary for the development of an educated, technically adept and engaged citizenry.

Convergences of information technologies

Wireless and other information technologies are increasingly pulling all kinds of applications, platforms, services and objects into networks. RFID, GSM, broadband, youtube, TV online and online TV – this convergence of information technologies is well known. Further, it is a commonplace that the multitude of information formats, outlets, and modes of engagement have created an open arena, where the previous hierarchical 'broadcasting' models have been replaced with more democratic and heterogeneous access to both the publishing and retrieval of opinions, perspectives, news, and media of various sorts. The web - and digital technologies more generally, as the story goes - allows everyone to

be producers as well as consumers of content and allows almost infinite exchange – of video, audio, writing, software – in a globally accessible web of inter-related nodes. Culture, as they say, has gone global as well as exceedingly local. We are all now creators of our own media lives, embedded in intertwining threads of an endless landscape where place, space, materiality, the virtual, consumption, and production are all just nodes on a relational network, rather than ontologically distinct things.

Our project comes out of a sense that while this vision is at least partially true, it is certainly not the case that the networks being created or the technologies being implemented will drive, in and of themselves, social or technical equality. Instead, our project emerges from a growing desire to take an active stance in relation to the creation not just of the content that circulates within the emerging global networks of states, things, people, digital contexts and environments, but also in the creation of the networks themselves. We see the current metaphors being used to describe the ‘Future Internet’ as problematic in both their social and technical formation, particularly in the ways they attempt to hide complexity, heterogeneity, and difference in order to create smooth, assumed transparent interfaces. We ask the questions, what kind of citizen is the result of assumed transparency? What are the downsides?

Seemingly seamless
This strategy is particularly obvious in the implementations of the dominant computing paradigms of ubiquitous or pervasive computing, and the new metaphors of ambient intelligence and calm technology. The systems being created increasingly rely on assumed seamless interactions with ever more complex technological structures hidden under the surface. The dominant forces driving this integration are to be found in the logistics, retail, telecommunications and security industries. The standard results of these negotiations are information systems that incorporate media, digital devices, networks, computing protocols, legal regimes, and public and private organisations in order to create closed

socio-technical infrastructures that provide a seamless experience of information delivery and consumption. The most famous example of the success of a systems approach to design is the iPod and iTunes system developed by Apple. Recently Peter Merholz of Adaptive Path, a US-based product design company, has made the product/system link explicit:

‘The iPod is a product, but it succeeds only because of how it works within a system...The iTunes software is the key to the success of the system. It allows the iPod to be a successful product, because it offloads the bulk of functionality to the PC, which is better suited to handle it...But it doesn’t stop there. Apple truly cinched the deal when it opened the iTunes Music Store. Now you could fill your iPod with all manner of media, listening or watching it wherever you wanted to. The iPod device isn’t a product in and of itself so much as it is an interface to this larger system...’

(<http://www.adaptivepath.com/blog/2006/09/29/stop-designing-products/>)

The iPod example shows the value of developing media distribution as a closed system that includes, social, technical, and legal structures. However, in the above quote Merholz fails to mention three possibly troubling aspects of the iPod system that also contribute to its seamlessness and its success. These are namely, the almost total control of iPod hardware, software, and peripherals that Apple maintains, the Digital Rights Management software and protocols that allow Apple to extend control to the media files themselves, and the legal regimes (such as the Digital Millennium Copyright Act in the United States) that provide the means for Apple to discipline those that break their controls. That such closed systems are problematic within the social and cultural context of the EU is revealed by the recent law suit against Apple by the French government, and the growing calls (including one by the CEO of Apple,

Steve Jobs) to remove DRM technologies from media systems. Closedness, while traditionally seen as the way to provide economic protections for content-creators, is progressively understood – by governments, individuals, and by private companies themselves, as a restriction on the collaborative exchanges that maintain social and cultural values and create the possibility for innovative development.

Breakdowns

Here we can begin to see the downsides of seamless networks; on the one hand, there is a sense that the networks themselves, through confluences of social, technical, and legal regimes, can result in decreasing, rather than increasing access to cultural capital. This is, of course, the standard argument of the Intellectual Property radical – that instead of regressing back into an untenable situation that cripples the creativity that is required for a culturally sustainable social and economy life, we would do well to take a leap forward away from licences and individual property rights. We certainly do agree with this, though we also want to make some implicit claims embedded in this argument more explicit. The first is that this is not just about individuals who want to use or abuse other individuals cultural creations – to ‘steal’ in other words the work of others and to thereby reduce the value of doing cultural work at all. Instead, what is at risk is the scripting of solidarities between producers and consumers, citizens and policy, money and power, teachers and students through shared creation, the reworking of common themes, and embracing of both similarity and difference. Second, it is important to note that closed systems are brittle systems, that are less resilient to shifts and changes and require ongoing maintenance and support. If digital networks are increasingly the means through which we communicate as both local and global citizens, it is also increasingly dangerous to subvert our rights and our responsibilities to the control of single public or private institutions. Institutions, no matter how stable or currently powerful, grow, develop, and die – they are mortal beings, and as such can not be held responsible for the continuing stability of our digital territories. This responsibility must be shared.

Third, as some critics of Steve Jobs’ comments about DRM and the iPod have noted, it is easy to ask for the removal of restrictions on content distribution when you control the network itself. Opening up digital networks requires opening the content as well as the context of exchange. The one focuses on control in a fundamentally flux wireless environment, but the other focuses on hiding the technological complexity behind ever more simple – and closed – user friendly interfaces. In both cases there is no learning by citizens on how to function within such a system, thereby opening up all kinds of breakdown scenarios.

Our Response – opening convergence
In an information-rich, digitally connected world, where much of the knowledge and tools that we make use of are outside our heads, (our ‘extelligence’, see Stewart and Cohen, 1997), there will be a need to develop new communication ‘senses’ and abilities that allow us to be active producers not just of content but of the contexts of information exchange. Our work starts from this perspective, namely that to be an informed and active citizen in the global network, requires understanding and, to a greater or lesser degree, participating in the construction of our shared, digital world. Again, it is important to emphasize that creating ‘content’ for digital exchange is only part of this participation. This would be like allowing people to paint their houses but forbidding them to make any structural changes. We liken the issue to the model of ‘shearing layers’ as described by Stewart Brand. (Brand, 1994). Brand distinguishes between six different ‘layers’ of a house, noting the differing time frames in which these components evolve.

In particular, Brand details that buildings are more or less able to adapt to changing needs and environments, depending upon the amount of ‘slippage’ that can exist between their various layers. Buildings with greater involvements between layers, such as many of the experiments in modernist architecture, were less able to ‘evolve’ than more traditional designs, where changes to the ‘space plan’ or ‘services’ layers did not require massive changes to more temporally

fixed layers such as the ‘skin’ or ‘structure.’ This model provides added detail to the issues we want to address. First, it is important to note how ‘convergence’, ubiquity, and ‘systems’ approaches to digital design can result in infrastructures whose components, like the modernist architecture lambasted by Brand, are inter-related to such a degree that evolution becomes impossible. This is what we mean when we call such systems ‘brittle’ – because evolution is difficult if not impossible due to the tying together of temporally diverging aspects, such systems are unable to react and adapt to changing circumstances. Second, making only one layer of digital infrastructures available for manipulation, while making the others off-limits does not result in an open system. Luckily, there are already groups focused on the ‘infrastructural inversions’ (Bowker, 1994) that make the ‘taken-for-granted’ nature of infrastructures (Star and Ruhleder, 1996) open to change.

‘Bottom-up’ transnational ICT research infrastructures

There are many groups in Europe and elsewhere working on projects involving disruptive networking paradigms, architectures, and protocols for innovative developments around the Future Internet. These groups, which include labs organised by non-profit, private company, and educational institutions, often create knowledge that, for a variety of reasons, is not communicated to other contexts and environments or preserved over time. Community-based and publicly-funded information technology organisations, for example, are often engaged in creating innovative technology designs and novel practices of use (for example, through the repurposing and reworking of existing information technologies) that achieve little recognition outside of their immediate community or are quickly lost as organisations end and individuals move on to other projects. Similarly, unless capitalized by private industry (a relatively small number) student projects and experiments in design-education contexts are often forgotten after graduation. For both these groups, access to both economic and knowledge resources is limited. Equally, exploratory labs funded by the private information industry,

while resource-rich, often struggle to incorporate diverse user perspectives, develop innovative ideas, and explore novel conditions. While the three aforementioned groups may have somewhat different goals (e.g. education, profit, forms of social equity) they each share a desire to predict, discover, and create novel and innovative developments in information technology – each group wants to be involved in the development of the Future Internet.

In addition, Web 2.0 technologies (such as wikis, blogs, content systems, image repositories, etc.) are progressively allowing novel forms of self-organised communication and associations to form. Web sites such as Squid Labs Instructables, (<http://www.instructables.com>) online magazines like Make, (<http://www.makezine.org>) and Craft (<http://www.craftzine.com>), and e-commerce sites like Etsy (<http://www.etsy.com>) encourage individuals and groups to take control of their material environment by transforming it. These sites provide information resources for hardware and software hackers, mechanics, and crafters, and assist creators in selling and distributing the results. The sites listed above are only the most obvious and public aspects of what is a growing phenomenon – the sharing of DIY information and resources.

Our goal is therefore to better support DIY experimentation with digital technologies, and to foster the growing ‘bottom-up’ trans-national ICT research Infrastructures that will be the source of innovative technological developments and purposes. We pro-pose the creation of a generic information infrastructure through the development of shared and open hardware and software test beds for experimentation and a supportive online space for the sharing of questions, ‘how-to’s’, problems, and results. Creating shared hardware and software test beds will allow diverse groups to share development knowledges and leverage each others work; creating a supportive online communicative space will provide a centralized space for communication, help preserve the results, and encourage the participation of new groups and individuals.

We call this loosely organised set of already existing bottom up techno-cultural labs, r&d institutes, academic labs and research, and open source hardware initiatives bricolabs, in order to celebrate their ad-hoc, experimental nature, and their emphasis on practices of reworking, redoing, and ‘making do’. Again, it is important to note that our intention is to build on the illuminating work that is ongoing in projects like Access-Space (<http://access-space.org>), the Redundant Technology Initiative (RTI) (<http://lowtech.org>), RIXC (<http://www.rixc.lv>), V2 (<http://www.v2.nl>), Dorkbot (<http://dorkbot.org>), RepRap (<http://reprap.org>), Thinglink (<http://www.thinglink.org>), and Hivewares (<http://hivenetworks.net>) to name only a few. Our hope is to extend already existing linkages between these and similar initiatives, and to provide new means for individuals and groups to share knowledge related to the open rebuilding of our digital landscape.

Bricolabs

The term ‘bricolab’ was coined by the team at coletivo estilingue (<http://estilingue.sarava.org/moin/> BricoLab), part of the metaReciclagem or ‘metarecycling’ idea being implemented in Brazil, (<http://oxossi.metareciclagem.org/>). The term has been extended to include a loose collection of Brazilian, Indonesian, UK, Chinese, Indian and Dutch groups who are currently exploring mutual interests in the distribution of open source software and hardware tools. These groups include individuals like Felipe Fonseca in Sao Paulo who has been extensively involved in the iteration of the extended ‘bricolabs’ concept, Gustaff Harriman Iskander from Common Room, Bandung; Venzha Christ from the House of Natural Fiber, Yogyakarta; Lotte Meijer, MiniMedia-Lab, Amsterdam; Jaromil of dyne.org; John Bywater of the Appropriate Software Foundation; Ben Schouten of Fontys Ambient Intelligence, Eindhoven; Jerneja Rebernak from the Institute of Network Cultures, Amsterdam; and Maja Kuzmanovic of FoAM VZW. We mention these names in order to emphasize that individuals are also ‘knowledge conductors’ in the bricolabs projects, that the distribution globally is through the intersection of individuals and their embodied knowledge, not just through spaces like

labs or other institutions. Often they have built up loosely structured collaborative relationships over time as part of the wider media arts networked ecology. The suggestion here is that the linked yet uncommon ground of these networks can be harnessed effectively in the context of the technological shift outlined above to fully utilize the ‘rhythm of distributed code-work’ towards social gain. For a current list of all bricolab members and more information, see <http://oxossi.metareciclagem.org/moin/BricolabsNet>.

Bricolabs investigate the recent technological possibilities of wireless opportunistic ad hoc networking, social business models (not based on IP and patents), and educational levels of citizens agency in the loop of open source content, spectrum, software and hardware. As a new organisational model (based on open source) of diverse groups that share ‘open objects’ (open source software AND hardware) and knowledge about how to rework those objects (online ‘how-to’s), rather than sharing similar contexts, positions, or objectives, they are dispersed throughout different localities of technological saturation as diverse as London, Sao Paulo, Riga, Bandung, Beijing, Zagreb, Amsterdam, Johannesburg, Brussels, Dortmund and Yogyakarta. Bricolabs will join others investigate the potentialities of the combination of open societies, open hardware and open labs. Its strategic long term aim is to create a brand neutral and non-proprietary generic architecture of everyday infrastructures: energy, connectivity, transportation, research and policy for community building.

This research is necessary given the changing nature of our information environment and the importance of encouraging diverse participation in its ongoing construction. Without diverse involvement, the emerging pervasive computing environment may end up facilitating homogenous cultural values and perspectives that do not match the heterogeneity of the modern world. As information technologies become increasingly intertwined with European and world-wide cultural, economic, and political systems, involving diverse voices and interests in the creation of these technologies becomes a necessary step for managing questions of social equity, preserving

existing cultural and social values, and providing important resources for novel forms of socio-technical innovation.

Conclusion - design for commoning

It is important to recognise that the end goal of our work is not the creation of novel devices, new markets, or emergent forms of communicative activities. Instead, our goal is the development of a generic information infrastructure - and the tools and knowledge required to use, appropriate, rework, and innovate it. We see such a resource, created, maintained, and owned by no one individual, institution, or company, as a necessary part of a ‘digital territory’ in which a global, informed, and socially engaged citizenry has the potential to develop and grow. Such a terrain is not just about the technology; equally important is the development of the ‘critical making’ skills that allow this citizenry to engage with their information landscape, to make educated political and economic as well as technical decisions. The coming decade worldwide will be determined by the strained relationship between formal and informal structures and environments.

A design for commoning, one that views ‘uncommon ground’ as a resource, rather than a threat is the way towards living together locally in a globally connected world.

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Laboratório de Mídias Metareci-cladas (LAMIME) workshops, photos by Aoife Johanna Giles



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Seams and Scars, Or How to Locate Accountability in Collaborative Work

By Anne Galloway

Author's Note: In November 2006, I was kindly invited by V2_Institute for the Unstable Media and Virtueel Platform to speak at an event called 'Fleshing Out: Wearable Interfaces, Smart Materials and Living Fabrics.' Bringing together people from art, design, academia and industry, a central goal was to explore some of the social and ethical dimensions of current collaborative practice in these areas. As a cultural researcher who studies the development and design of new technologies, I am particularly interested in how these collaborations might work – or not work – and I set out to ask a few questions about the different interests, values, politics and ethics that encounter each other in these practices. This essay includes and builds on the presentation I gave in Rotterdam on 9 November, 2006. I still consider it an exploratory work, meant to stimulate further thinking and discussion rather than provide definitive solutions.

As someone who researches technology design cultures, I was quite excited when I was asked to speak about emerging textile technologies. I immediately found myself imagining the arts and sciences that come together to make them real, and since I was originally trained as an archaeologist, I kept coming back to material culture and practice.

1. See for example, Galloway 2004a; Greenfield 2006; McCullough 2005; Mitchell 2003; Norman 1999; Sterling 2005.

First, I considered all the organic and inorganic materials used to create these new technologies and applications. Then all the artists and scientists and laboratories and studios. All the tools and tricks-of-the-trade that make them. All the administrators and committees and institutions that manage them. All the local businesses, global industries, national governments and international policies that move them. All the people who desire and shun them. All the rules and all the ways around them. It was overwhelming.

But I knew that these kinds of collaborative research and design projects are increasingly expected, and I knew that the messiness of all these connections makes it difficult to locate accountability. I knew that if I wanted to look at how all the players in these research and design projects come together – and fall apart – I needed to be able to locate boundaries and points of attachment between them.

Given the techno-scientific and artistic domains at hand, two things immediately came to mind: seams and scars. Both are intimations of past actions and interventions, of things joined together and things cut apart. They mark the places where different subjects and objects were separated and connected. The whole each creates is a hybrid, something both old and new. Yet, by the time we see a seam, the fabric has been sewn; by the time we touch a scar, the cut has healed.

In other words, seams and scars point to where we have in the past made or become something else – and yet they also remind us that we can do so again in the future. If we treat them not as irregularities to be hidden but as indicators of our abilities to intervene in the world, seams and scars offer us glimpses of how we shape and re-shape ourselves, each other, and the worlds in which we live.

Now, before I go any further I should point out that I am far from the first to discuss technological 'seams,' but perhaps readers are more familiar with discussions of 'seamless' technologies, so I will start there. Whether called pervasive, ubiquitous, tangible or ambient computing, there is often the assumption or expectation that new technologies will somehow fade into the background of our everyday lives. With interfaces embedded so expertly into our environments and objects, computing would effectively become invisible if not transparent.¹

Early discussions of seams in ubiquitous computing were lead by Mark Weiser at Xerox PARC, and while his work advocated 'calm computing' he later felt the need to clarify that calmness does not necessarily imply seamlessness.² As Matthew Chalmers restates his position: 'Weiser describes

2. See for example, Weiser 1991, Weiser and Seely Brown 1996
3. Chalmers 2003
4. Rudström et al. 2005

seamlessness as a misleading or misguided concept. . .[H]e suggested that making things seamless amounts to making everything the same, reducing components, tools and systems to their “lowest common denominator”. He advocated seamful systems (with “beautiful seams”) as a goal.³

I was particularly taken by this idea of seamlessness as a form of reduction. Put in the realm of collaborative work, a ‘seamless’ team or project might be one in which consensus is preferred, or one in which boundaries between disciplines and sectors disappear. This reminded me of how often I hear people acknowledge, or even lament, the difficulties of collaborative work – and how rarely I witness anyone challenge the idea that our ultimate goal should be harmonious products, if not processes.

But what if messiness, disjuncture or tension were not considered enemies to collaboration? What if these seams (or scars) were things we did not try to hide, avoid or overcome?

But what if messiness, disjuncture or tension were not considered enemies to collaboration? What if these seams (or scars) were things we did not try to hide, avoid or overcome? Following a call to both reveal and take advantage of infrastructural failures normally considered problematic, the notion of seamful computing has been most recently used to focus on ‘connections, gaps, overlays and mismatches – within and between physical, digital and social space.’⁴ Put otherwise, some designers are explicitly re-framing ‘failures’ in terms of how people route around technological glitches, and how the messiness at hand can be seen in terms of potential.

Anthropologists call spaces of transition, or thresholds between one state and another, liminal spaces. In physical terms, the beach is a liminal space: it is neither ocean nor land, but somewhere in-between. In cultural terms, liminal spaces tend to be navigated by ritual. For example, weddings mark the transition between single life and married life, funerals mark the transition from life to death, and both mark passages and processes that shape individual and collective identities. So liminal spaces are spaces of potential or becoming; they are places where things change and interesting things happen. As such, I find remarkable hope in seams and scars. But because liminal spaces, and potentials, are also rather uncertain I find good reason to proceed with care.

5. Chalmers et al. 2003

Returning to discussions of ubiquitous computing and seamful design, Chalmers and his colleagues again paraphrase Weiser: ‘[M]aking everything the same is easy; letting everything be itself, with other things, is hard.’⁵ However, in human-computer interaction research the politics and ethics of these kinds of practices are most often treated as side-notes, or simple acknowledgements that there are, indeed, politics and ethics at hand. I wanted to better understand these politics and ethics, and how they might manifest in collaborative work.

To start, ‘letting everything be itself, with other things’ is an interesting position. It values singularities, acknowledges multiplicities, and implies a kind of convergence without consensus. This struck me as an interesting way to look a little closer at the hybrids created in the collaborative work of emerging textile research. In the case of seams more literal than the technological ones I just described – yet equally applicable to xenotransplantation and dressmaking – something is cut from one thing, and sewn to some other thing, to create yet another thing. The kind of hybrid that emerges depends precisely on what was excised and what remains, as well as what was brought together and what was kept apart.

In other words, with each new creation or collaboration we arrange and re-arrange different risks and responsibilities. The resulting assemblages can be so messy that it can be difficult to figure out how one is accountable to, and for, these arrangements. These scenarios are further complicated by what gets washed off, or thrown away, in the process. This is important because whether by deletion, erasure or purification, processes of differentiation and convergence become difficult to identify, let alone change – and that has serious political and ethical implications.

‘letting everything be itself, with other things’ is an interesting position. It values singularities, acknowledges multiplicities, and implies a kind of convergence without consensus.

For example, the seam or the scar can always tell me that something happened, and while I can always look to the joined object (the hybrid) I may never be certain about the details of what was removed or added to make it, and how that was accomplished. I knew that some cuttings and joinings are very violent and painful, and the results can be rather monstrous. Some seams and scars are ragged and worn, or the connection is always under threat and failure is immanent. Some seams and scars are repeatedly repaired, and new lines are laid down beside, and through, the old.

It struck me that the politics and ethics at hand in all these cases challenge us to witness – not just gaze upon, but genuinely witness – these processes, or how seams and scars are actually made. And this is a rather serious challenge because we have the opportunity, if not the responsibility, to identify what we both desire and allow to be connected and separated. After all, by making decisions about what is relevant or irrelevant, inside or outside, us or them, we not only shape a new kind of hybrid, but we also reshape each of its constituent members – including ourselves.

As I have argued in the past, in these kinds of assemblages ‘design is not objective, not given, not matter-of-fact. Instead, design is a matter-of-concern that requires the convergence of difference, of taking into account and being accountable to things that appear irrelevant or contrary to our personal interests.’⁶ Although seamlessness may remain a powerful and effective metaphor to guide particular projects, when it comes to actually getting the work done – and the challenges of having to do it with people who can be very different from each other – then I suggest it is in everyone’s best interests to recognise the importance of seams and scars in marking places where interventions can be made, or where potential can be found and acted upon.

Getting back to the shaping processes, or to the things that make seams and scars, we can start by acknowledging that there are multiple forces at hand and they are never neutral. In order to modify and maintain – to control – all these new technologies and new ways of working there are always a variety of different, and sometimes divergent, cultural interests and values in play. And where people actually ‘draw lines’ and ‘take sides’ is arguably where we need to pay the most attention.⁷ Returning also to the notion of liminality, we can look to the ‘rituals’ or practices of collaborative work in order to better understand how people actually negotiate uncertainties and potentialities.

Given increasing opportunities and support for collaborations between universities, industries, artists and others, a deeper and richer understanding of the associated material and symbolic cultures can only help everyone involved make more informed decisions, and hopefully, to take greater responsibility for themselves and others. I think that many of us are familiar with notions of citizenship and democracy that rely heavily, and in rather tricky ways, on tolerance and consensus. Although it is no less an attempt to organise things, what I am suggesting instead is convergence – and that inevitably means that we will have messes and sometimes there will be conflict. We can try to reduce the intensity of the conflict, or we can avoid antagonising others, but the desire to eliminate tensions entirely is similar

to the desire to get rid of, or hide, seams and scars.

Now, in order to bring all these loose threads together, so to speak, I would like to take a closer look at ethics in the processes I have described. Rather than having to do with morals, ethics also refers to *ethos* – or the characteristic spirit and sentiment of a people. This bottom-up rather than top-down approach to social conduct is also related to Bruno Latour’s call for assembling around matters of concern rather than matters of fact: ‘There are no more naked truths, but there are no more naked citizens either. The mediators have the whole space to themselves.’⁸ Aesthetics, not in the sense of art but in the perception and declaration of the beautiful, also arise from ethics.⁹ How we mediate these relationships then is of paramount importance.

These understandings of ethics and aesthetics can be used to help social scientists, artists, businesses, governments and citizens engage and evaluate social and material interactions within increasingly messy collectives of humans and non-humans. Following Michel Maffesoli, ethical action and aesthetic experience are always already productively combined in social and cultural life.¹⁰ And as Rob Shields further explains, ‘Ethics alone is insufficient to make changes or guide actions. It is a content that requires a form – an aesthetics . . . Aesthetics alone is equally insufficient, for it leads to an aestheticized politics of manipulation and of form alone without content.’¹¹

The remaining challenge, then, is to assemble and mediate shared matters of concern in an attempt to negotiate – and create – goodness and beauty in our lives and work. In many ways we already do this everyday, but right now I am talking about making the implicit more explicit. I am talking about bringing the seams and scars into full view. I am talking about witnessing them, and each other. About making decisions and taking action. About accepting responsibility.

In doing so we cannot help but to also stitch together – and pull apart – the social and cultural concerns that shape and are shaped by collaborative work. In paying attention to seams and scars we can all ask what, and who, are being made. We can ask how they (and we) were made, and how all of us might be unmade or remade. These are not easy questions, but I am convinced that they are amongst the most important questions if we seek a critical and productive understanding of our actions in the world. I believe that we need to openly and critically reflect upon, and talk about our own

concerns, expectations, values, decisions, practices and actions – and what roles they play in collaborative work.

And now, in the spirit of discussion, rather than closing the matter I would like to open it up with a few questions: Who is making the cuts? Who gets left behind? What goes forward? Who does the suturing and sewing? Has there been suffering? Healing? Are the seams ugly? Are the scars beautiful? What can we learn about ourselves and others by attending to the seams and scars our work creates and leaves behind?

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