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Designing knowledge:
An interdisciplinary experiment
in research infrastructure
for shared description

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Preface

This report brings together two halves of a long-term project, carried out through 2004 and 2005. Each half has been presented and distributed privately, but not previously published. A single publication based on this work may be produced at some time in the future. However there is sufficient demand for access that I have prepared this version simply by placing the two halves together, with this preface and a brief postscript summarising experience since the second half was written in August 2005.

The report presents the experimental development, evaluation and refinement of a method for doing adventurous design work, in contexts where academics must work in collaboration with corporate and public policy strategists and researchers. The intention has been to do applied social science, in which a reflective research process has resulted in a “new social form”, as expressed in the title of the research grant that funded the project. The objective in doing so is not simply to produce new theories, or to enjoy interdisciplinary encounters (although both of those have been side effects of this work). My purpose in doing the work and writing this report is purely instrumental – working as a technologist among social scientists, the outcome described in this report is intended for adoption as a kind of social technology. I have given this product a name: the “Blackwell-Leach Process” for interdisciplinary design. The Blackwell-Leach process has since been applied and proven useful in several novel situations, and I believe is now sufficiently mature to justify publication of the reports that describe both the process and its development.

I would like to thank James Leach for his collaboration in this project, Marilyn Strathern for her initial welcome, patience and encouragement, and my colleagues in the Crucible network for helping to develop these ideas. I am grateful to the ESRC for funding the project Social Property and New Social Forms, and to the other co-investigators, research assistants, and workshop participants who have participated in the project (many of whom are mentioned in the body of this report).

Alan Blackwell
7 April 2006

Designing knowledge: An interdisciplinary approach to creating tools for shared description (Part I)

Report on IDW2 – an Interdisciplinary Design Workshop at Girton College, as a component of the *Social Property and New Social Forms seminar*

Alan Blackwell

Crucible Network for Research in Interdisciplinary Design
University of Cambridge, June 2004

Interdisciplinarity is widely recognised as a good thing for academics and for technology research. Funding bodies give additional credit for interdisciplinarity when assessing research funding proposals, academic promotion panels give special recognition to interdisciplinary effort, and many academics take pride in advertising their work as interdisciplinary.

This report describes an event within the Social Property and New Social Forms seminar, a year-long experiment in interdisciplinarity being conducted at the University of Cambridge¹. The overall project consists of four colloquia on themes relating to knowledge, description and ownership, each with a linked Interdisciplinary Design Workshop (IDW). The purpose of the IDW is on one hand to provide an opportunity for observing, at close quarters, the kind of collaboration that the overall series is concerned to study. On the other hand, the IDW provides an opportunity for an applied outcome from insights achieved from social science research.

The term “interdisciplinary design workshop” was coined by James Leach of the Cambridge University department of Social Anthropology and myself (from the University Computer Laboratory), in the course of discussions with the University Corporate Liaison Office and BTEExact (the research arm of British Telecom) during 2002. We had been charged with the specification of a “flagship” research project to inaugurate a new era of strategic collaboration between the University and BT. The research subject matter was to be a study of the social context of broadband internet usage, but this was largely incidental. BT were primarily attracted to multidisciplinary as an approach to the development of creative new ICT products² (Patmore & Whittaker 2003), while the department of Social Anthropology was attracted to the possibility of a corporate research sponsor, for which Cambridge departments receive a higher-than-usual 70% overhead on top of research income.

The relationship between this bride and groom was of course attended by various differences in aspiration and intent. An anthropologist who already worked in an interdisciplinary design group at BT, when describing her work at one of our introductory meetings, appeared to academics as little more than a market researcher, rather than a true ethnographer. For their part, BT engineers were nervous about the prospect of technology research based on fieldwork, which sits uncomfortably within business timescales. They reported that in their experience, academic anthropologists go away for three years, after which they come back with the answer to a question that the company is no longer interested in. It was in response to these tensions that James and I proposed a project structure in which ethnographic fieldwork would be interleaved with interdisciplinary design workshops, during which designers and technology researchers could draw on anthropological work-in-progress.

¹ Marilyn Strathern. *Commons and Borderlands: Working papers on interdisciplinarity, accountability and the flow of knowledge*. Sean Kingston Publishing, Oxford, 2004.

² Jeff Patmore and Steve Whittaker. *The Management of Creativity & Innovation*. BTEExact White Paper, 2003.

That proposed project has been deferred, and may never proceed. However the context in which it developed, leading to the idea of an interdisciplinary design workshop as an adventure in social science, has been a significant influence on the publicly funded experiment in Social Property and New Social Forms. From my perspective as a design researcher and technologist, it is the themes explored during our encounter with BT that informed my approach in convening the second IDW in the series (and will also inform my approach to a fourth IDW in September). These themes include the relationships between designers and researchers, between clients and users, products and payments, and between fieldwork and market research.

In IDW2, we chose a specific question: “Creating Shared Descriptions for Biological Knowledge”, around which these themes of interdisciplinary design could be explored. The question was chosen because it appeared relevant to the interests of the Cambridge Genetics Knowledge Park, a key collaborator in the overall Social Property project, and because we had a prospective client for the workshop (in fact two clients) the Genome Knowledgebase initiative, and the Gene Ontology Consortium, both international enterprises with design teams working locally near Cambridge. These organisations are already engaged in the design of a particular kind of product – databases containing standardised descriptions of the knowledge and terminology arising from biological research. The users of these products are mostly the biological and genetic researchers who generate and apply such knowledge. The workshop participants included four representatives of the client organisations, four technical specialists in areas such as website design, database user interfaces and knowledge visualisation, and three specialists who had previously worked on a similar design project – a system for developing structuring knowledge within the pharmaceutical company ArQule. Eight observer-participants from the Social Property colloquia were also invited.

The central design idea in IDW2 was to focus on the representation of knowledge structure, but to escape the constraint of conventional representations by using concrete representational tokens such as plasticine, pipecleaners and cardboard, rather than the flipcharts or whiteboards that are more often used among professional designers of databases and websites. I had used a similar exercise on a previous interdisciplinary project, in which the newly convened research team – a philosopher, a neuroscientist and an anthropologist – built informal models (or “three-dimensional sketches”) from common art and modelling materials as a means of exploring new representations. The members of that team were sufficiently impressed by the results that they themselves later ran workshops at other universities and conferences, promoting the use of plasticine and pipecleaners as a general technique in design research³.

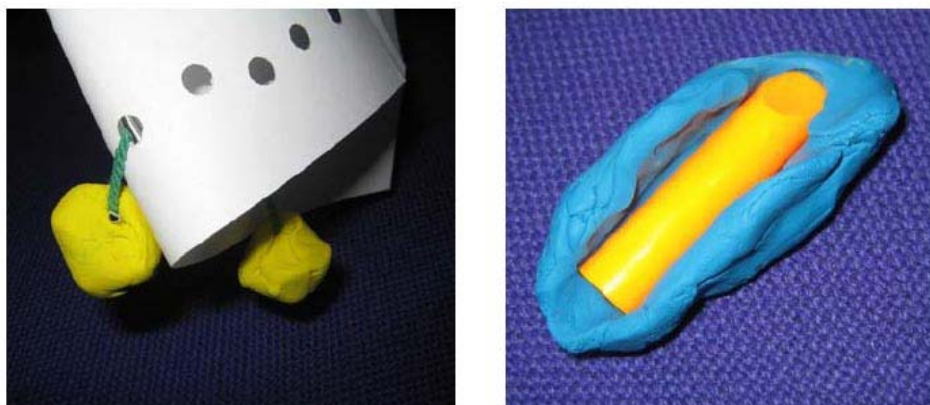


Figure 1 - 3D Sketches of possible representations for facilitating meetings

³ Rode, J.A., Toye, E.F., Stringer, M. and Blackwell, A.F. (2004). Rapid prototyping for tangible UIs. In *Proceedings of the 2nd International Conference on Appliance Design*, p. 153.

The timetable of IDW2 was divided into introductory material in the morning, followed by design activity in the afternoon. The introductory material started with exercises using the modelling materials – making a name badge, then creating a device or prompt that could be used to help conduct meetings (Figure 1). Two brief talks were given on types of 3-dimensional knowledge representation, ranging from handheld objects to architectural scales. Finally two of those involved in the ArQule project presented that work as a case study in interdisciplinary design, providing a precursor for the work to be done in the afternoon. The ArQule project had involved a period of ethnographic fieldwork, followed by the development of new software representations (Figure 2) that exposed the aspects of uncertainty, expert judgement and working estimates that had previously been implicit in the “knowledge tools” created by the company’s software developers. Although exposing those tacit assumptions might have created new tensions between the professional groups (pharmacologists and computational chemists) within ArQule, the final result was a product that enabled new discourse between those communities. A design outcome of this kind might be imagined in the application context of the GK/GO products.

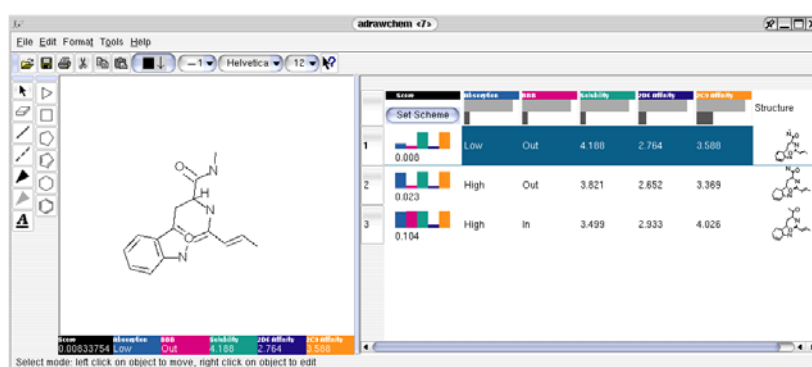


Figure 2 – Design outcome of ArQule case study

The afternoon session of the IDW was unstructured, except in response to the number of people present in the room. More experienced colleagues had advised me that it would be nearly impossible to achieve the atmosphere of creative and reflective exploration required in a design workshop with 20 participants. The group was therefore divided into an “inner circle” who worked around the table of art materials, and an “outer circle” who observed from the sides of the room. The two groups changed places half-way through the afternoon. One might imagine that this slightly clumsy attempt to engineer an intimate discussion was unlikely to succeed. In fact it was not as awkward as I had feared – but the afternoon was also awkward in other respects, and these had direct consequences for the design goals of the workshop. I shall review them with respect to the themes already introduced, arising during the original plan to engage in interdisciplinary design workshops with BT.



Figure 3 – An “inner circle” discussion around a table of art materials

Firstly, with respect to the relationship between designers and researchers, the proposed BT project had been convened with an intended design outcome that was implicit in the corporate enterprise of BT research, whose purpose is to create new commercial property for BT. In contrast, most of those present at IDW2 were researchers, with only a couple of design professionals – and these had been invited as guests, rather than beneficiaries. The “clients” of the design activity were the GK/GO projects, and this had been made clear in the briefing materials. However the representatives of these projects were not “users” of the GK/GO databases, and did not have any reason to act as surrogates of those absent users. On the contrary, the GK/GO participants described an enterprise whose existence and relationships were in flux. At the start of the IDW, they announced that one of the client organisations we had described in the workshop briefing material was about to disappear. The Genome Knowledgebase initiative would be dissolved within the next few weeks, to be replaced by a new organisation whose name had not yet been decided (since then it has been relaunched as “Reactome”). During the morning modelling exercise, in which participants were asked to make some physical representation that might facilitate difficult meetings among colleagues, one of the GK staff produced a P45⁴!

The process of design usually takes place within an explicitly commercial context. The relationship between client and designer is paid for by the client, out of revenue expected in proportion to the utility of the product. However in IDW2, these relationships did not exist in their typical form. GK and GO are publicly funded organisations, whose existence is predicated on the presumed utility of their research field, rather than on direct commercial outcomes⁵. They in turn had not paid for (or even requested) the design services offered in the IDW. In fact the representatives of GK/GO appeared to attend the IDW somewhat reluctantly, responding to invitations and briefing material after long delays, arriving late at the workshop itself, and offering no sign of gratitude for the invitation (or any outcome), either on the day or subsequently. The professional designers who had attended the workshop found the day interesting as a novel exercise, and for the variety of people they met, but had no opportunity to exercise their design skills. They had freely contributed their professional services (normally billed at hundreds of pounds for a day), but found that these services were not required. A further source of discomfort was that, in the face of no real enthusiasm from GK/GO researchers to

⁴ The P45 is the legal form that must be produced by a British employer when an employee is to have his or her contract terminated.

⁵ Failure to address user requirements is a characteristic of other publicly funded research infrastructure programmes such as the Grid Computing component of the UK “e-Science” initiative, which is a very large-scale programme by comparison to the GK/GO projects. See Bruce Beckles, *User requirements for UK e-Science grid environments* – paper presented at UK e-Science All Hands Meeting (AHM 2004).

present their work to other participants, the others turned to more detailed discussions of their own interests – conversations that many found interesting, but that I, acting as chairman, cut short in an (ultimately unsuccessful) attempt to return to the problem at hand.

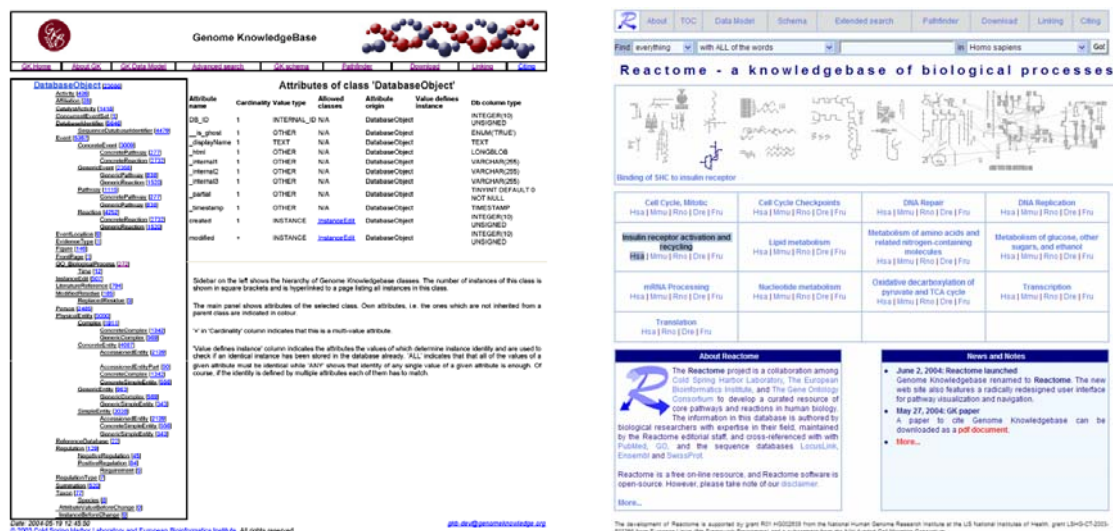


Figure 4 – The Genome Knowledgebase redesign – before and after

These failings to properly anticipate the needs and interests of participants are of course my responsibility, as the workshop convenor (and possibly frustrated “lead designer”, in the light of my previous professional career as a design consultant). One important outcome is that I and others must learn to do better next time. However in order to analyse our experiment in interdisciplinarity and applied social science, we must look a little further, at the aims of the Social Property series. In the earlier ArQule project, a period of fieldwork had led to the identification of important social relations that were obscured by the software systems used within the company at the time. The design outcome was a new set of visual representations that allowed for new kinds of interaction between expert communities. Such an outcome might certainly have been envisaged in the case of GK/GO. The enterprise of constructing a globally agreed set of names and definitions for all biological research is one that is clearly problematic when viewed by a researcher in science and technology studies, or indeed any social scientist. However attempts to identify such problems during the IDW were quite reasonably resisted by our only possible informants – the representatives of GK/GO – who saw themselves as responsible for avoiding problems, not creating them. Furthermore, one of the participants reported part-way through the day that the visual interface to the GK database had just been redesigned. The workshop briefing material referred only to the old design, and the GK/GO staff had not commented on this. Very few designers, on completing the creative enterprise of producing a new design, are prepared at that point to start again questioning the assumptions on which that design is founded.

With no problem to be solved, no product to be made, and no design work to be done, it is unsurprising that the design collaborators might find the plasticine modelling exercises puzzling, frustrating, or a waste of valuable time. When reviewing the IDW, one of the social scientists present was surprised that I might have expected any other outcome, describing my plan for the introduction of social science expertise based on only a few hours with reluctant informants to be unworkable. My own ambition – that the preparatory colloquia might provide an input of social science theory to be applied in the context of the IDW – was motivated by my experience of technical contributions to professional design teams, but in this case was perhaps compromised by my more naïve understanding of social science. The same researcher who criticised the workability of my plan also reported that during the IDW he had “felt like a fool” – outside his own sphere of expertise, and being asked to

engage in activities in which he had no confidence. Experiences like this are clearly unproductive for any project, whether in academic or professional spheres.

Whatever the actual design outcomes of IDW2, when considered as an experiment in interdisciplinarity, it has given me the chance to learn some important (and hard) lessons. IDW4 will provide a welcome opportunity to apply what I have learned. In practical terms, IDW2 might have been more successful with the benefit of more preparatory work, including individual meetings with all those involved, and “homework” exercises to ensure that participants were familiar with the briefing material before the start of the day. A more rigidly structured afternoon might also have helped participants focus on specifically required outcomes, selected by the convenors in advance of the workshop. Precautions of this kind can help smooth over the difficulties of an encounter between such different disciplinary perspectives. A more rigid prescription of the processes and required outcomes might well have made the day more “productive” in conventional design terms. However, reducing the risk of failure would perhaps also have reduced the adventure, uncertainty and tensions inherent in interdisciplinary encounter – and that adventure was the central concern of the whole enterprise.

Designing knowledge: An interdisciplinary approach to creating tools for shared description (Part II)

Report on IDW4 – an Interdisciplinary Design Workshop at Girton College, as a component of the *Social Property and New Social Forms seminar*

Alan Blackwell

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Background to the problem

This report is the sequel to a report on a previous Interdisciplinary Design Workshop, IDW2, also a component of the Social Property and New Social Forms seminar in 2004. The two parts of this report will be published together in future. The problem addressed in IDW2, was the question: “Creating Shared Descriptions for Biological Knowledge”, which aimed to address the needs of two design clients: the Genome Knowledgebase initiative, and the Gene Ontology Consortium, both international enterprises with design teams working locally near Cambridge. As described in the report on IDW2, the proceedings of that workshop were unsatisfactory in a variety of ways.

In IDW4, we addressed the topic of “Design, Marketing and Digital Media”. This was motivated by the fact that the nature of advertising is changing rapidly, as new technologies provide both additional communication channels and extended audience choice. Advertisers are excited by the opportunities inherent in virgin territory that is produced by new communication channels. However, they also feel threatened by extension of consumer choice because of the consequent danger that fickle audiences will exploit technical facilities to move elsewhere. Furthermore, the distinction between advertising and service delivery becomes inherently blurred in the case of digital channels. The clients for this workshop were Oyster Lab, the research arm of design consultancy Oyster Partners, and an innovative advertising agency Campbell Doyle Dye (CDD). Lorenzo Wood, director of Oyster Lab, and Luke Skrebowski, a designer at Oyster, participated in the workshop, as did Walt Campbell, a principal of CDD; Caspar Thykier, a designer; and Gav Thompson, Client Service Director at CDD. Other participants included: Georgina Born, an anthropologist who had been exploring the transition to digital media in the context of public service television; Dave Crossland, a young digital artist and media design student; Robert Doubleday, employed by the Cambridge Nanoscience Centre to study public attitudes to new technology; Sebastian Macmillan, an architect, design researcher, and research policy consultant; Helga Nowotny, Professor of Society in Science at ETH Zentrum, Zurich; and Matthew Postgate, Executive Producer in Mobile technologies at the BBC.

Characterisation of problem

The structure of IDW4 was determined largely by our analysis of unsuccessful aspects of the previous workshops, rather than any special insight into the specific topic that we were to address at this one. In particular, my own reflection on IDW2 was that it had been both under-prepared and over-structured in certain ways. The problems in preparation at IDW2 had arisen from the degree of engagement with the workshop clients. In preparing, we had met with only one member of the client organisation, and he was not personally responsible for the organisation’s future plans related to the topic of the workshop. His colleagues and managers, whom we met for the first time on the morning of the workshop, did not appear to share the goals that we had developed (partly in discussion with our contact, and partly from our study of the organisation’s public account of its work). Furthermore, this

group were socially separated from the other workshop participants by the fact that they had not joined us at the seminar, reception and evening meal the previous day. The rest of the participants were already comfortable with each other, and the client group immediately felt isolated on arrival. This isolation was exacerbated by the fact that they had travelled to the venue that morning (unlike the rest of the group, who had stayed in town after the previous night's meal), and travel delays resulted in some of them entering a room full of people who already knew each other, and apparently had a common purpose that excluded the clients who should have provided a central focus for the workshop.

Preparatory phase of process

We took several precautions to avoid this situation at IDW4. First, we went to significant trouble to gather all the client group for a meeting at the CDD premises in London, several weeks before the workshop. Three members of our own research team travelled to this meeting. The size of our own delegation was important: as a token of commitment, to demonstrate that it was important for us to understand the context of their work, and as an exchange in recognition of the inconvenience that was involved for them in assembling a group of busy professionals for a further three-hour meeting in addition to the full day they had already committed to the workshop itself. This preparatory meeting was critical to the success of the workshop. It demonstrated serious intent, provided a basis of trust through understanding of personal motivation, and helped to dissolve the suspicion among business people that academics are reluctant to leave the "ivory tower" in order to engage with real world concerns.

Apart from its functions of symbolic encounter and exchange, the main purpose of this preparatory meeting was "expectation management". The research team were able to emphasise their role as social scientists, for whom any outcome was a scientifically valid one. This was offered as reassurance that there was no agenda competing with the explicit agenda already agreed as the workshop topic, and that there would be no pressure on the clients to perform as objects of academic enquiry, beyond open admission of the outcomes they themselves might individually and collectively wish to see. The researchers were also able to see the way that the clients chose to present their own professional competence, in this case by showing videos of their completed advertising work. In recognition of this material mode of demonstration, we consequently arranged for projection facilities to be provided at the IDW venue, so that the clients could establish their credentials on equal terms when dislocated to the potentially intimidating academic trappings of Cambridge University. We had already applied this strategy successfully in IDW1, when the workshop started with a choreographic exercise in order to establish the professional competence of the participating dancers as peers of the academics. Finally, the preparatory meeting was an opportunity for the client representatives to establish their own credentials among their peers, as being competent to participate in this "academic" project. Quite naturally, many of the staff in a successful London company have very good academic qualifications, although possibly in areas that are not directly related to the work of the company, so may not previously have been exposed in the usual course of business. A meeting with academics on company premises gave these individuals the opportunity to demonstrate this competence before their own colleagues, by offering theoretical insights to the meeting and engaging in discussion with academic visitors.

A further strategy motivated by the events of IDW2 was to insist that all workshop participants come to Cambridge on the day preceding the workshop. For those who found academic discourse attractive, all participants were invited to attend the colloquium on the previous afternoon. However this opportunity was not pressed. At previous IDWs, it was clear that some non-academics had been discomfited by the practice of reading lengthy prepared papers, and by open discussion that could be heavily laden with social-scientific jargon. At IDW4, only those who showed enthusiasm to attend the colloquium did so, with those who were likely to be uncomfortable judiciously arriving just too late. All participants were strongly encouraged to attend the reception that followed the colloquium, an event which let them feel that they had participated in some way, had mixed with the (larger)

colloquium audience, and had some idea of what kind of event it had been. One or two workshop participants did not arrive in time for the reception, but we had insisted that every participant must be present at dinner that night. Those who expressed doubts were told in that case, we would prefer that they did not attend the workshop. Eventually everyone was able to be present. This dinner took place in one of the many College dining rooms of Cambridge. The furnishings, food and dining rituals of Cambridge college dinners have been refined over centuries to provide the ideal setting for convivial encounters between academic peers. The benefits of this evolutionary development should not be under-estimated. A hotel dining room or restaurant cannot offer this richly embedded social practice, although it is possible that a carefully selected private home or club might be able to do so. By the end of this meal, which included liberal serving of alcohol, a friendly community had been established. Most workshop participants then slept in College rooms (or at their own nearby houses) before gathering for a punctual start the following morning.

The precautions described so far were successful in addressing the problem of under-preparation that had compromised IDW2. On the workshop day itself, the main problem to be addressed was that of over-structuring. Part of my motivation in the structure of IDW1 and IDW2 had been influenced by the common consulting practice of facilitated brainstorming events. Many consultants offer events of this kind as a service to (typically) boards of directors who hope to invent or discover imaginative new business opportunities. The rhetoric and practice of these events is to do with the work of creativity, and participants, often lawyers, accountants and professional administrators, are often provided with art materials or improvised performance opportunities as “tools” with which to do creative “work”. These tools are intended to help them “break out” of habitual or constrained modes of thought, leading to a “divergent” phase of generating fanciful and speculative ideas followed by a “convergent” assessment and selection of candidate concepts for future development.

Although apparently popular in business situations (at least the consultancy market continues to thrive), these strategies are not fully appropriate to professional academics. Academic work already involves the habitual generation and assessment of many new ideas, and this is generally carried out using particular academic tools (including libraries, notebooks, individual conversation, and long baths). Adopting the tools of the visual or performing arts might be seen as irrelevant, inefficient or even insulting to academics. This was certainly not our intention in IDW1 and IDW2, but for those participants who were familiar with corporate-style brainstorming events, the structure of dance (IDW1) or artistic construction (IDW2) in the morning, followed by “creative” discussion of new ideas may have seemed highly reminiscent of such events.

At IDW3, we experimented with a very different structure, in which the morning session resembled a far more familiar academic format – the student seminar or tutorial. The convenors identified the central intellectual questions that lay at the core of the workshop topic, and invited skilled experts to provide a succinct introduction to the history and current concerns around those questions. All present agreed that the invited experts achieved impressive results. As one of the social scientists present commented later, she felt that by the end of the morning, she had absorbed almost the content of a first year undergraduate law course. However, these skilled expert tutorials had several unanticipated consequences. Firstly, we had disturbed the equilibrium of the intended community of peers by giving a small number of those present the privilege to take the floor for an extended period of time. The time constraints of the morning meant that others had not yet had an opportunity to speak at all by the time we broke for lunch. Some of those who had not been able to speak felt disenfranchised or unvalued as a result. Secondly, the tutorial presentations had established certain vocabularies and modes of inquiry as the disciplinary ground for the remainder of the day. Despite our own rhetoric of “interdisciplinarity”, what we had constructed might be better characterised as a group of observers and commentators on a particular discipline. Finally, even those who had successfully absorbed the equivalent of a first-year law course in a morning were then asked in the afternoon not to act as second-year undergraduates, but to grapple with questions that frustrate postdoctoral law researchers.

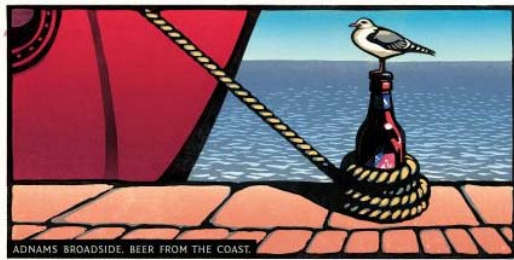
It is not possible to construct creative researchers in a single day, and an anthropologist helping us prepare for IDW4 described her own experience of this aspect of IDW3 as one of frustration.

Novel facilitation process

Our response to this problem was a radical one. We decided that for IDW4, we would not invite any of the academic participants to make presentations. We also decided to minimise even the amount of introductory explanation of the workshop topic (although we were obviously aided in this by the fact that the topic was advertising, an area with which everyone has some degree of familiarity, unlike the IDW3 topic of international intellectual property law). Finally, we proposed that we would not even, at the start of the workshop, make any firm statement about what question or problem we were trying to address. This is completely at odds with the usual practices both of (Western) business meeting facilitation and of professional design, in which it is considered essential to start any activity with an explicit statement of objectives. We hypothesised that, if we (or any participant) made an explicit statement of objectives, this too would privilege the vocabulary of one discipline as the “officially” sanctioned ground for the day, thereby replicating this unsatisfactory aspect of IDW3. Instead, we started the day by asking everyone present in the room not only to introduce themselves, but to explain what their intention was – why they had come to the workshop, and what they as persons would like to achieve as an outcome from the workshop. This round of introductions took around an hour, by the end of which the particular vocabulary of each of the represented disciplines had been aired, and all the academics felt that they had been offered a token “speaking right” before the group, even though we had asked them to speak as persons, rather than as oracles of their disciplinary knowledge.

This particular innovation was resisted by Lorenzo Wood of Oyster, whom we had asked to act as facilitator for the workshop. After my personal disappointment with the process of IDW2, I had decided that I would prefer to see someone else act as the chair/comperer/facilitator “front person” at IDW4. This was also an opportunity for us to contrast the working practices of a professional design consultant to those of professional academics/researchers, who had chaired the previous three workshops. Lorenzo was happy to accept this role. However it was a struggle to convince him that he should not start the day with a formal introduction of the objectives and ground of discussion – a struggle that continued until seconds before the meeting opened! Fortunately, having accepted this one experimental constraint, Lorenzo demonstrated consummate skill in managing the process of the workshop, and deserves much of the credit for the satisfaction we all felt with the result.

One particular concrete practice was of immediate value. In my own experience, very few academics use “flipcharts” in meetings. Academics usually bring prepared material to an event (OHP transparencies or computer presentations), and record audience contributions, if at all, as transient visualisations on an OHP foil that is then removed, a whiteboard that is wiped, or a computer that is turned off. In contrast, the use of flipcharts preserves and displays a public record of contributions to the meeting. This is completely routine in business contexts, especially in the facilitated brainstorming sessions which Lorenzo conducts regularly. Flipcharts had not played a significant role in the previous three IDWs, and I had been slightly surprised when Lorenzo requested that one should be placed in the room for this workshop. However as soon as IDW4 proceedings started, it became clear that the flipchart would be an essential focus. When participants started to describe their desired outcomes for the day, Lorenzo immediately transcribed key phrases from these introductory remarks on flipchart pages to be pinned on the walls. The diverse vocabularies of the different disciplines represented by those in the room were thus preserved and exhibited throughout the day. This both furthered my own experimental concerns with disciplinary language, and also provided a mechanism for consensus-making at the close of the day, when Lorenzo returned to these lists, asking each individual in turn whether their objectives had been achieved (the response was almost unanimously affirmative).



The next part of the workshop proceedings was a presentation by the clients, CDD, of their professional work. At the preparatory meeting in London, we had noted the professional practice in “creative” advertising work of starting a meeting by selling one’s own craft skill, presenting credentials in the form of a portfolio or exhibition of past work. Even when meeting a group of visiting academics, to whom no “sale” would be made, CDD staff wished to show us a sales-style presentation of their work. This is a habit with which I was already familiar from prior design research work. Appropriating this conventional practice as a component of the IDW offered several advantages. Firstly, demonstrating a concrete product provided the client with an opportunity to “show” rather than “tell”, meaning that workshop participants first encountered the central concern of the workshop without an accompanying narrative that would re-establish a prior disciplinary vocabulary over the emergent group vocabulary being recorded on the flipcharts. Secondly, this invited demonstration of professional competence (and professional leadership – one of CDDs advertisements had recently been voted the most popular television commercial ever screened in the UK) helped to avoid a common problem of Cambridge meetings, which is that non-academic visitors to the university can be offended by a perceived valorisation of academic over pragmatic discourse. Thirdly, it helped us to comply with Lorenzo’s own golden rule of client relations. His first priority is that, at the end of a project, the client should feel that he or she has enjoyed the experience. An essential prerequisite for this enjoyment is that the client should have had an opportunity to perform – speak to an attentive audience in workshops and meetings.

The remainder of the morning at IDW4 was dedicated to the task of identifying a question that would be addressed in the afternoon. In preparing for the workshop, and in Lorenzo’s introductory remarks on the day’s agenda, we had emphasised to participants that the agenda for the afternoon was not to be predetermined in any way, but would be allowed to arise from individually desired outcomes and the “exhibition” of the client’s work. The process of identifying a question was once again recorded on the flipchart, now in the form of a simple list of issues and candidate questions, captured by Lorenzo as they were mentioned. (During the CDD presentation, Lorenzo did not make any flipchart notes). No special process was defined for this session, beyond a simple ceremonial gesture as Lorenzo wrote the word “Questions” at the top of a blank flipchart page. In a room full of academics, no further encouragement is needed for them to commence discussion. No kind of discussion was ruled off-limits, although all participants showed a clear commitment to addressing the theoretical and practical concerns that they had identified from the CDD presentation, and also showed some sensitivity to the set of desired outcomes already displayed on the walls. The discussion developed organically, including relevant specialist knowledge and perspectives from varying disciplines, in a natural way. Although technical and specialist terms were introduced during this discussion, by this stage of the morning it was quite clear when these were likely to be new to other participants, and they were easily defined in the course of discussion. Key terminology, as well as candidate questions, were recorded on pages of the flipchart.

Toward the end of this session, Lorenzo invited direct statement of further candidate questions that might not yet have arisen, and clarified formulations of the questions already discussed. During the following lunch break, he pinned to the walls flipchart pages with a final set of around 20 candidate questions. He also prepared a set of Post-It notes, with the name of each workshop participant written

on three notes. As participants returned to the meeting room toward the end of the lunch break, each was given the three notes with his or her name, and asked to stick them next to the three questions that they recommended for discussion in the afternoon sessions. The accumulation of Post-It notes against particular questions provided a simple “transferable vote” system, so that individuals could choose either to move their own votes to select between leading options, or to place one of their votes against a minority interest topic as a public token of dissent. The identification of votes with particular people meant that everyone was able to anticipate what kind of discussion would occur, or what stance would be taken toward that question. At the end of the voting process, Lorenzo simply identified the two questions with the most votes as the agreed topics for the afternoon discussion. The afternoon was then divided into two sessions (with a teabreak between), each allocated to one of the chosen questions.

The process of the morning (plus the preparatory work and meeting the previous evening) had established the conditions for productive collaborative design work. The actual work done in the remainder of IDW4 is of less importance as a basis for future exercises, so I will summarise it fairly briefly. The first question was how advertising can protect and develop narrative to “tell brand stories” in the context of fragmented, non-linear media. The discussion investigated ways in which advertising might adopt different aesthetics and contexts, becoming valued content in itself. The second question was related to how the advertising industry measures the worth of a particular advertisement. The conclusions drawn reflected that the measures used are a substitute for real understanding of the nature of the work, and that the ultimate purpose of the measures is related to personal and ethical values in the industry. This discussion did identify a clear opportunity for intervention and leadership within the industry, based on a model of “corporate social responsibility” as an alternative to existing measures, that would give both advertisers and clients an opportunity collectively to reflect on the cultural and social impact of their business activities.

Commercial opportunity for this process

For the first time in the four IDWs, we had suggested (at the preparatory meeting) that the workshop client might pay for the professional design service they had received. We were quite open about the fact that the IDWs are experimental, and that there was a significant chance of failure. Indeed, it is unlikely that the clients for any of the previous three IDWs would have paid for the results. If asked, they may even have suggested that we should pay them for their time, and in fact we did pay travel expenses for the person most readily identifiable as the “client” of IDW3. The agreement made for IDW4 was therefore that we would simply inform the clients, after the workshop, of the direct expenses we had incurred at IDW4. This included the college dinner and accommodation, cost of using the venue, travel costs for the academics attending the meeting, and an honorarium for two workshop participants who were not in other employment at the time. The client would then tell us what proportion (if any) of this amount we should charge as a professional fee, which we then would request by invoice. This slightly crude measure of the business value arising from IDW4 was nevertheless gratifying, in that the client asked to be sent an invoice for the full cost of the workshop. This amount approached £2000. We subsequently discussed the event, methods and outcomes with several experienced company directors, to find out how our style of working and potential value might compare with the “product innovation” exercises that are often commissioned by corporate boards. Our estimate is that a fee of £10,000, although near the top of the price range for such exercises, would still be attractive, and might form a sustainable business model for a social science based consultancy company.

We have not (yet) pursued this business opportunity, but have been asked subsequently to carry out several further IDW-style events based on the methods described here. These have been for academic and research clients, which may form the natural market for this style of working (although sadly, a market less willing to spend £10,000 for our services). In the four cases subsequent to IDW4, the nature of the event has been that it involves mostly professional academics, coming from a wide range

of disciplinary perspectives, having general awareness of some problem but no clearly agreed statement of the exact nature of the problem or the methods required to address it. At the time of writing, two workshops have already taken place (for an interdisciplinary university department trying to develop a research strategy, and an economic development agency trying to identify a means to generate business activity from university departments of humanities and social science). Two more are being prepared, and will take place over the next few months (for a corporate research group in the software industry, and a public funding body wishing to stimulate research that might bridge the global “digital divide”). Most of these projects have involved working together with experienced professional meeting facilitators, including consultants with 20 or 30 years experience in the design industry.

In these four subsequent cases, it has been clear that the method described here, as developed through a process of iterative experimentation over the four IDWs of the Social Property project, is superior to the best professional practice of today. Of course it may be overly specialised, having been developed specifically for the situation in which academics from multiple disciplines gather to address a conceptual design question. This may not be a particularly frequent requirement. Nevertheless, as a social technology outcome of applied social science research, our results must be counted a great success. The question of whether our own university can (or should) find a way to exploit or protect the “intellectual property” that we have generated in this project is a more complex one. In fact the document that you have just read constitutes a “disclosure” of our discovery (unless you have signed a confidentiality agreement or paid a licence fee, which at the time I write seems unlikely to occur). Unrestricted disclosure will release this intellectual property into the public domain – a single such disclosure will prevent us from ever protecting it by a legal device such as a business model patent. It is unlikely that you, the reader, will have paid any fee to licence “our” intellectual property. It is even more unlikely that we, the “inventors” will receive any portion of such fees as a royalty (although we must admit that we were offered some financial reward for our participation in the development process, as consultants to the Social Property project). Perhaps we might suggest, in the tradition of purely academic reward, that the “invention” described here be known as the “Blackwell-Leach Process”.

Process overview

The Blackwell-Leach Process for interdisciplinary design:

1. Select 12-15 participants, mixing disciplines and seniority.
2. Hold a preparatory meeting at client premises.
3. Host a college dinner and provide local accommodation.
4. Listen to all participants’ desired outcomes, record and display them.
5. Exhibit and engage with the material product of the client’s work.
6. Open discussion in order to identify proposed questions.
7. During a break, individuals mark their preferred questions.
8. Consider the most preferred questions in turn.

This process falls into the class of design processes described by Christopher Alexander as a “Pattern Language”. It is a human process, suited to constructing the future world. A pattern language, as defined by Alexander, is a creative process guided by a script or sequence. Alexander’s own design work is in architecture, but it shares a common spirit with the Blackwell-Leach Process. The essence of his work, and of ours, is to help clients create their own culture. In order to achieve this, facilitators must show honesty of engagement, of critique, and of their own capabilities. They should cultivate a respect for place and for wholeness, elevating the dialogue to a place where right and wrong become

apparent, and bringing spirit to the thing that is made. We are aware of other collaborative practitioners who apply these guiding principles in other fields, for example the work of the radical choreographer Thomas Lehman, whose work “Stationen” requires honest engagement with public volunteers who are simply asked two questions: “what do you do” and “what is it like”?

Postscript – Process Verification

The two halves of this document have been brought together for publication as a technical report two years after James Leach, Marilyn Strathern and I first started work on the development of new methods for interdisciplinary design, with funding from ESRC.

The Cambridge University business office has decided not to proceed with patenting the Blackwell-Leach process.

Based on our experience of applying the process subsequent to the Social Property project, we are able to offer some “sensitivity analysis”, describing the effect that variations to the process have on the outcome:

- There has been one occasion in which we exactly replicated the process as described here. This workshop, sponsored by Microsoft Research Socio-Digital Systems Group, addressed the question of how they should conceptualise and operationalise their own research agenda within the context of Microsoft Corporation. It was fully successful, achieving the same kind of results as described here.
- An attempt to compress the process to a half day on another occasion produced some useful results, but was far less coherent. By the end of the time available, we had started on step 6. The client believed that even this part of the process was valuable, but agreed that it would be necessary to hold a further meeting in order properly to discuss the questions raised.
- Failure to meet with key client representatives at their own premises did compromise the process
- Increasing preparatory engagement by visiting every participant (not just the client) did result in further benefits, but was expensive.
- In one case, failure fully to engage with the client resulted in a senior client representative expressing passive resistance by arriving an hour late. On that occasion, we refused to start until he was present, and this was the right decision.
- An attempt to hybridise the process with conventional product-oriented brainstorming was not successful. A very large number of “product concepts” were generated, but although reassuring to the client as a quantitative measure of creative output, the degree of conceptual insight achieved was limited in comparison to cases where the process was followed more closely.
- An extended version of the process was extended to five days, for use in an EPSRC Ideas Factory “sandpit” meeting. The facilitation consultancy company Creative Exchange was able to develop and extend these ideas in a very productive way.
- This is a process suited to interdisciplinary engagement of academic researchers with design. It is not a general purpose business technique, and it appears to be less successful when fewer than about two-thirds of the participants are academic researchers.