‘Textiles, Environment, Design (TED): Making Theory Into Textiles Through Sustainable Design Strategies, Pedagogy and Collaboration’

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Abstract: *The TED research cluster at Chelsea College of Art and Design, University of the Arts London, is a collective of practice-based design researchers whose main concerns are the consideration of the role that the designer can play in creating textiles that have a reduced impact on the environment and to provide a toolbox of designer-centred solutions. The cluster involves both staff and students in projects that apply ecodesign theories to textiles practice, with the aim of generating artefacts and theories that will aid designers in creating ‘better’ materials, products, systems and improved social well-being. This essay uses three recent TED projects to illustrate how some of the TED members are creating new textiles, dialogues, and enterprises that are all inspired and guided by the TED cluster and its open, pedagogic and collaborative structure.*

Introduction

This essay, in four parts, introduces the TED project and uses three recent projects by its members to illustrate how a cluster of practice-based design researchers is working together to create new knowledge and theory concerned with sustainable textile design.

Today, green issues feature highly on many agendas and increasingly designers are realising the environmental impact of their creative decisions. They have a crucial role in improving the environmental profile of textile production, whether the designer is freelance, whereby their contribution is often the catalyst for international, mass-scale production, or as a small-scale designer-maker. Research shows that if designers make informed and appropriate design decisions at the outset, then the environmental performance of any product can be improved by up to 80%. Whereas other textile research projects look to the manufacturer or producer to ‘clean up their act’, TED wants to challenge the designer to create textiles that have a reduced impact on the environment. (Earley, 2005)

The TED project exists as a research cluster which encourages and supports practice-based design research into the field of textiles and related design disciplines. Using an understanding of the lifecycle of textiles – the beginning (production / manufacture), the middle (use), and the end (disposal) – the TED projects explore how textile designers can create materials and products that will perform better in environmental terms. Since 2005 the TED members have been working together to develop a series of possible strategic solutions to assist designers in their decisions. These address both the ‘hard’ and the ‘soft’ aspects of ecodesign: some of the strategies consider materials and processes including low toxicity/organics, new technologies, design for reuse/upcycling and Biomimicry; and some consider more conceptual approaches such as lifecycle thinking, fair-trade and ethical production, short life/long life textiles, design for low launder and systems/services design. These individual strategies have, over time, evolved into ‘TED’s Design Stories’, which promote interconnected design thinking for textile design. (Politowicz & Earley, 2009)

This interconnected approach has been explored through the many and wide ranging TED projects since 1997. The 'Particle Fabrics (2002/3) project, lead by Kay Politowicz, is an excellent example of this. This work involved researchers, lecturers, technicians, and students. The textiles were created in the Chelsea workshops by the team in London, and later installed and exhibited in Milan. Kay's roles here included lead researcher, teacher, and art director / producer. (Politowicz, 2002)

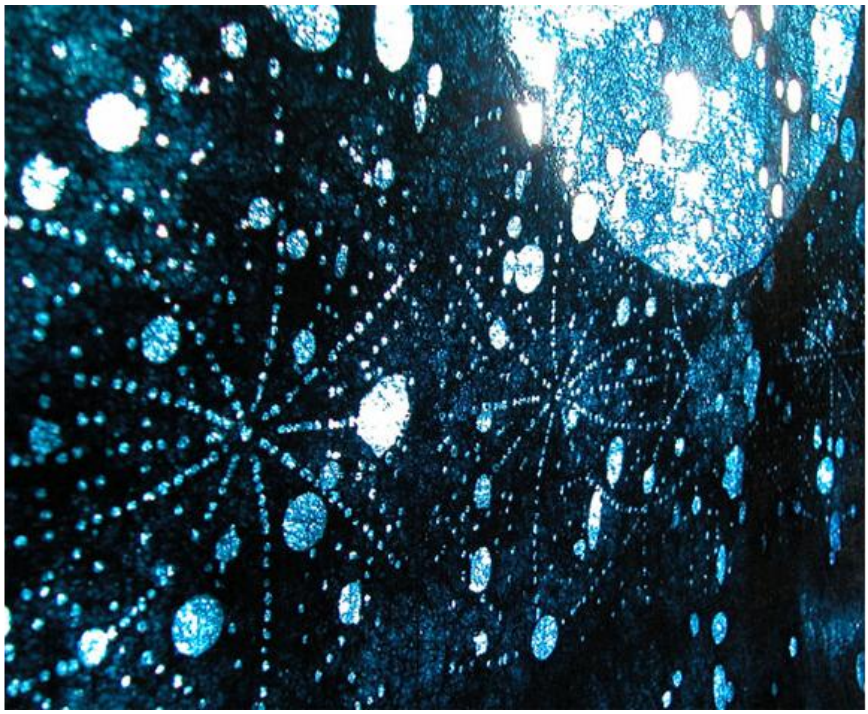
Through meeting once a term to share information, host discussions and aid dissemination, the ideas and learning from each of the projects was passed on to TED members and students. In 2003 the TED Resource was established to formalise this process, and realise the pedagogical potential of the project. The Resource quickly became the physical and intellectual focal point for the cluster. The staff could use the resource to help them teach, and in turn the students made donations and contributions – often gifting their dissertations to the archive for collection and dissemination.

It is now a working space which houses a unique collection of information about sustainable textile design. The collection consists of fabric and clothing samples, press cuttings, academic and student papers, research projects and case studies which are all available to designers, researchers and students. The information is stored in a set of standard filing cabinets, but on top of this is a large pattern-cutting table. TED members work around this table – bringing fabrics, cuttings, books, flyers and other materials – sharing and updating each other, brainstorming new ideas, drawing and stitching new samples. The space was designed to help the staff 'make the theory into textiles'. From this point they take the ideas into the studio spaces, and work with the students.

The students are quick to absorb ecodesign ideas. They independently attend the many events, lectures, conferences, workshops, exhibitions, and festivals that London and the UK can offer. They will often travel abroad to such events in the name of design research if they can. Through TED – the projects, the meetings, the mentoring relationships - the TED staff are able to confidently and creatively embrace and support this thinking, and can help the students turn it into new and challenging sustainable textile design.

The current and future TED projects are concerned with non-hierarchical team-based projects, which combine researchers with students and professionals. We are interested in methodologies that foster and facilitate learning - from each other and our associates and clients – and generating new dialogues and theories, creatively applying sustainable design ideas to existing / new business ventures and creative enterprises.

Image 1: *'Particle Fabrics', by Professor Kay Politowicz, Milan 2002 (Photo: B. Earley 2002)*



ReSurfaced (2007) – Kate Goldsworthy

The 'Ever and Again' exhibition in October 2007 offered an opportunity to confront a dilemma, that had emerged through my PhD study. Research into the potential for closed-loop, textile waste streams and cradle-to-cradle design, had revealed a problematic group of materials, which represented a block to repetitive recycling of resources.

This group included composite, man-made materials, which could not be recycled because they contained blended fibres from both technical (synthetic) and biological (natural) material metabolisms. Named 'monstrous hybrids' by McDonough & Braungart in their inspirational text 'Cradle to Cradle: remaking the way we make things', these materials represented a difficult challenge. This was the focus of the ReSurfaced project described in the following text.

The Shoddy Problem

> *"An increasing amount of waste is generated each year from textiles and their production. For economic and environmental reasons it is necessary that as much of this waste as possible is recycled instead of being disposed of in landfill sites. Considering the diversity of fibrous waste and structures, many technologies must work in concert in an integrated industry in order to increase the rate of recycling." (Wang, 2006)*

The impact of textiles as a highly problematic waste stream is well documented. 'Volumes of clothing, purchased annually in the UK, have increased by around one third [since 2000]', (Allwood et al, 2006) and this embedding of 'fast fashion', into our current consumer landscape, has resulted in a parallel emergence of 'fast landfill'.

Existing recycling systems are enabling some synthetic textiles to be recycled over numerous life-cycles, (for example the development of a closed loop polyester recycling scheme at Teijin or of biomaterials designed as safe nutrients for biodegradation such as Climatex Lifecycle) however, these require a pure feedstock in order to be recycled appropriately.

According to a recent report (Allwood et al, 2006) there has been almost no technology innovation in textiles recycling for over 200 years and there has been a huge increase in the percentage of mixed-fibre textile waste created through blending and finishing processes, driven by the ever-increasing demand for performance and functionality. This instills a legacy of waste and prevents inclusion in high-value reclamation.

These 'shoddy' materials cannot be upcycled through repolymerisation nor biodegraded, and often end up 'downcycled' as low grade fibre products such as underlay for carpet, insulation materials or other 'unseen' and low value applications. I wanted to explore the potential for 'upcycling these materials – adding value - through design interventon. By treating them as precious resources was it possible to promote them to a higher value and prevent further 'downcycling'?

A Technology Solution

My PhD project has been addressing this problem at the design stage, by trying to embrace new technologies for producing monomaterial finishing processes for use with synthetics, in order to produce more recyclable, functional materials for a future polyester economy. However in this project my focus was to address the problem at 'end of pipe' after the damage has already been done. The emphasis being on keeping the materials in 'high value' service, to increase the demand for future recycling. This research proposes that there is potential for 'design for upcycling', enabled through a new toolbox of technological processes.

In order to address these low-grade mixed fibre waste textiles, I looked to the plastics industry. Borrowing from food packaging technology, where a technique existed for laminating recycled plastic with a very fine layer of virgin polymer, I devised a similar process for shoddy. By applying a fine layer of polyester non-woven onto the shoddy and then manipulating this surface, through laser techniques developed for the PhD project, the material could be given a 'new skin', making it useful for more prominent or high value applications. Thus, a 'monstrous hybrid' that had been destined to landfill, although remaining hybrid, with this application, may be upcycled for future lives.' (Neuberg, 2010)

By borrowing techniques from marquetry and surface etching, a new palette of treatments emerged,

resulting in a collection of upcycled shoddy textiles for interior applications, exhibited with TED in 2007.

Future technological developments may way provide ways for these materials to be separated back into their constituent parts and returned to their cyclic origins, but in the meanwhile strategies for extending life and creating value from waste will have an important place in preventing further landfill of valuable resources.

***Image 2**: 'ReSurfaced', by Kate Goldsworthy (Photo: K. Goldsworthy 2007)*

Making Change: *bricolage* – Clara Vuletich

Part of my new role at TED as a research assistant in 2006, was my participation in the 'Worn Again' research project. I joined the project in the middle of the first year and I was unprepared for what a profound impact it was to have on myself and my practice. Twelve participants, staff and researchers with years between us of experience in making, designing and educating about textiles, worked together for three years exploring design-led textile upcycling. During this time, I became part of, and watched unfold before me, a way of working that has transformed me from a hesitant textile graduate with no experience of research, to a PhD candidate. As I became more involved as the project progressed, I couldn't believe what I had stumbled on – an approach to design and making that was thoughtful, that came alive through shared ideas and meaning. This combination of making and thinking is where I now choose to situate myself within design.

Central to the 'Worn Again' project was a collaborative way of working. I was intrigued yet baffled by this approach - How do you manage so many different agenda's and personalities? How will the participants work together in this way, while also maintaining their own unique design vision? It became clear to me that the beauty of the workshop structure, and the skill of the facilitator, offered the messy, blue-sky thinking encouraged of the participants, a structure.

There was also the complexity of ideas that we were attempting to explore together, situated around sustainability. The challenge of how to capture and negotiate through the intangibles in textiles - emotion, memory, tactile and sensory experiences of cloth. The structure of the workshops and the collaborative way of working gave us the space and support to explore these ideas through both making and dialogue.

Also, the more we explored the ideas around sustainable design, the more I began to realise the benefits of this collaborative approach. In trying to tackle such multi-layered issues, the task calls for joined-up thinking. If a sustainable design approach requires designers to become 'change makers', which I believe it does, the more hands and minds involved the better.

Unknown to me at the time, I was developing an increasing ease with collaborative thinking, that has now become an essential element to my work. When I wasn't at TED, I was working on developing a practice as a designer/maker producing hand-printed wallpaper and textiles to commission. I enjoyed the solo nature of making, but realised I also needed a support structure, not unlike the workshop format from the 'Worn Again' project. I craved the dialogue and sharing of ideas on a regular basis. And so, through a combination of good timing and providence, *bricolage* came into being.

bricolage is a textile collective of five designer/makers and we all create bespoke textiles for interiors. We exhibit together and run workshops together whilst continuing to work on our own individual practice. We are all graduates from the BA textile course at Chelsea College of Art & Design, with its emphasis on creative innovation and sustainability, and this has equipped us with the knowledge and confidence to try out new ways of working as designers.

From the outside, it may seem that the issue of sustainability is secondary to our activities and making. However, it is inherent in what we do, whether it is sourcing our materials ethically or working with a community organisation to 'upskill' local people. I see this collective as a kind of experimental lab in which to continue exploring the multi-layered issues surrounding sustainability that I was introduced to during the 'Worn Again' Project, albeit in a variety of innovative new ways.

I have now decided to further my exploration of these ideas through a PhD at TED adding more skills and knowledge to my designer 'tool kit' and exploring my role as a 'change maker'.

Image 3: *'bricolage', London 2009 (Photo: Oliver Reed 2009)*

Conversations on (a) Slow Craft (2009) - Rebecca Earley

> *'The question of what craft can contribute to the Slow movement is a very timely one. The Slow movement shares a lot with craft, namely respect for tradition and heritage, an appreciation of where things are made, and an emphasis on social networks.'* (Vuletich, 2009)

The 'Conversations' research project was inspired by an exhibition – 'Taking Time: Craft and the Slow Revolution' (2009 – 2011) - and the dialogue that took place as the exhibition was planned and developed. I was approached in May 2008 by Andy Horn from Craftspace about an exhibition that he was co-curating with maker Helen Carnac. The 'Taking Time: Craft and the Slow Revolution' exhibition '*seeks to think about disciplines in making, art, design and craft areas that may be connected to Slow philosophies and thinking with an overarching aim of creating a vehicle for space to think about the importance of contemporary making.'* (Carnac, 2009). Helen and Andy were interested in including the 'Top 100' project work.

'Top 100' began in 1999 as a personal project that was a creative antidote to the demands of both my design label – *B.Earley* - and my teaching post at Chelsea College of Art and Design. It currently serves as a vehicle for my practice-based textiles research, which is concerned with exploring contemporary eco-design theories. Over the years what began as a personal textiles recycling project, has become an experimental and collaborative upcycling research project. Dividing the 100 shirts into a series of chapters has been a constructive way for me to explore different narratives and concepts. It has meant that I have been able to take my time, working slowly through and layering many inter-connected ideas and theories. It has become a project concerned with testing ecodesign theories, including 'slow design'.

At the very heart of the Craftspace exhibition, which is full of very beautifully crafted objects, is the written and spoken dialogue that surrounds practice. Carnac and Craftspace wanted to produce an exhibition which not only lead the audience to these special objects, but also took them on a journey through the thought process and the making of the pieces, by commissioning a series of audio based projects.

> *'We have aimed to develop this thinking in a propounded manner – ideas are put out into space and received back, through a blog, recorded conversations and other media - the intention to share ideas and develop new thought. The makingaslowrevolution blog, which set up in January 2008, forms a vital thread through all aspects of the project and a space for this reflexive and open-ended process to take place'.* (Carnac, 2009).

It was my interest in these dialogues that inspired me to develop the 'Conversations' project. In September 2009 TED members and guest artists took a barge trip along a London canal, aboard the Jenny Wren, from Walker's Quay in Camden Lock. We discussed the Slow movement and slow design, and what it means to us and our work. I was interested in a dialogue that directly linked textiles design and making to the Slow movement, with the final aim for the day being the generation of an idea for a new group research project.

The conversations were themed in the following way:

- **Session 1:** What does 'slow' mean to you and your practice as a textiles designer? How does teaching impact on your practice in a positive way? In what way does research affect the speed / quality of your work?
- **Session 2:** Slow Food lunch discussion - What is the Slow Food movement about? Are the issues and ideas transferable / relevant to textile design?
- **Session 3:** Slow and the Textiles Industry - What does slow, speed and quality mean in large-scale textile production? How could the ideas behind the slow movement improve the ecological impacts created in the textiles industry?
- **Session 4:** Emma Neuberg's Slow Textiles.
- **Session 5:** What ideas do we have for a practice-based collaborative slow textiles project?

Out of all of these sessions, it was session 4, lead by Emma Neuberg, that really resonated with the group. Suddenly, we found ourselves learning Japanese sashiko stitches, and immersed in our sewing a silence descended over us. We stopped talking for a while, and became more thoughtful, slower. Emma then delivered historical and theoretical information and ideas to us. After all the talk from the day, finally it was through practice that we began to really feel the links between the slow movement and our creativity.

As founder of the UK group 'Slow Textiles' (www.slowtextiles.org.uk), Emma Neuberg has created a time and place for this reflection to occur on a monthly basis. This is an NPO established in 2009, that 'stimulates social, mental and cultural capital.' (Neuberg, 2009).

> *'Slow is a cultural expression of differentiation. It is an embodiment of feeling and a statement of intent. Applied to apparel and textiles, it promises an abundant recipe for social, mental, cultural and resource capital. As a pace, activity, behaviour and attitude it offers a powerful mix of hope, sharing, immaterial wealth and autonomy…'* (Neuberg, 2010)

Emma writes about her motivation for setting up the group in the forthcoming TED book, 'Upcycling Textiles' (Earley, 2010), realising that her skills and her 'knowledge of cultural theory, psychoanalytic process, textiles practice and sustainability issues', in combination with the recognition 'that simple craft classes and make do and mend workshops were not offering the full scope of insights, learning and support that the countercultural voice was calling for.' Emma writes that she 'could see that sustainable, symbolic, immaterial, psychological, social and cultural phenomena might be integrated into a practical learning experience and space for all to partake in, and ultimately, inherit, exchange and pass on'. (Neuberg, 2010)

We had ended the trip in such capable hands! Energised and inspired from this slow session, the final session of the day was held back on dry land, where we all worked together to brainstorm a project that might allow us to develop a brief that would embrace the thinking and lead to making. We came up with a really exciting plan for 2010. Watch this space! (www.tedresearch.net)

Participants on the day included: Rebecca Earley (TED Reader, lead researcher); Kay Politowicz (TED Professor); Dr Frances Geesin (TED member, Reader LCF); Clara Vuletich (TED Research Assistant); Kate Goldsworthy (TED PhD Student); Jennie Ballie (TFRG / TED PhD Student); Dr Emma Neuberg (TED Associate); David Gates (Furniture Maker); Linda Florence (Textile / Surface Designer) and Russell Martin (Dialogue Artist). The edited transcription from the day is available as a PDF download from the TED website, www.tedresearch.net. The format for this one-day event is to be repeated in different UK cities during 2010 / 2011, and will include groups of local makers and artists conversing on slow modes of transport. The final outcome will be the publication of all of the edited transcripts.

Image 4: *'Top 100:Twice Upcycled Shirt' by Rebecca Earley and Kate Goldsworthy, 2007 (Photo: Oliver Reed 2009)*
Image 5: *'Conversations', TED, London 2009 (Photo: B. Earley 2009)*
Image 6: *'David & Linda Conversations', TED, London 2009 (Photo: B. Earley 2009)*

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Image 7: *'Becky, Kate, Clara, TED, London 2009 (Photo: Oliver Reed 2009)*