



## We Shape Our Tools, Then They Shape Us

### Kay Politowicz

Professor of Textile Design  
Textiles Environment Design (TED)  
University of the Arts London (UAL)  
Chelsea College of Art & Design  
16 John Islip Street  
London, SW1P 4RJ  
[k.politowicz@chelsea.arts.ac.uk](mailto:k.politowicz@chelsea.arts.ac.uk)

### Rebecca Earley

Professor of Sustainable Textile and  
Fashion Design  
Director of Textile Futures Research  
Centre (TFRC)  
University of the Arts London (UAL)  
Chelsea College of Art & Design  
16 John Islip Street  
London, SW1P 4RJ  
[r.l.earley@chelsea.arts.ac.uk](mailto:r.l.earley@chelsea.arts.ac.uk)

### Abstract

The artifact is a set of ten cards entitled TED's TEN, developed by the research group Textiles Environment Design (Chelsea College of Art and Design, UAL), a group of education and practice based design academics investigating sustainability in the textile and fashion industries. When used together, the cards can serve as practical guidelines to examine, survey and highlight the problem of sustainability and the role of designers in change and innovation. They present visual evidence of strategic thinking.

Each card identifies a significant, critical area for attention in the lifecycle of the product and suggests a strategy for analysis and change; approach and resolution; consideration and action, acting as a tool to overcome the barriers to improvement. Developed with a focus on textiles and fashion, they have a potential role in generating strategic concepts for the design process generally. They offer a persuasive prototype from design research and are a research tool in themselves, whose relevance becomes clear when used to facilitate design workshops.

The cards promote group workshop discussions in game-play and role-play formats. They are offered as a range of entry points for positive research-led engagement from the practical to the idealistic.

### Author Keywords

Sustainability; textile design; prototype; toolbox; analysis; systemic change.

### Research Imperatives

The name of the research group TED – Textiles Environment Design bears witness to its founding themes. The original imperative motivating our group of practitioners was to understand the growing problems of pollution of the environment from the production of the textile industry. As designers and teachers we needed accurate and detailed knowledge and a general overview of the entire chain of production. It was essential to research and collate the existing body of knowledge, which subsequently turned out to be limited and unconnected.

The meaning and possibilities of sustainability in textiles became a key element in our research. We dedicated our practice to understanding and demonstrating how design could contribute to the future of textile products. Detailed analysis of every stage of the process of production including the ecological challenge to design out wastage of material, energy, water and landfill made it clear that designers must consider the entire lifecycle of textiles (Graedel et al, 1995:17).

Questions surrounding production and consumption in the consumer society, including the role of new technologies in accelerating consumption, became important. We realised the need for a transformation of design education in textiles to be effective for future designers. Awareness of sustainability had to be brought into the core curriculum.

The need for a map of the subject of sustainability, a complex and difficult terrain, became a clear imperative. We focused on the



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barriers to environmental improvement and devised a cluster of strategies to overcome them. The TEN cards (fig. 1) are a tangible presentation of those strategies.

As the TED group research evolved, the importance of collaborative and predictive roles, also relevant to other disciplines, became clear. Our imperatives have changed likewise and design activity has shifted from creation to facilitation, to publication, towards the development of our 'toolbox' and outcomes that have resulted from it.

The imperative always remains to develop methods of communication and dissemination and foster relationships as a community across disciplines. Two major challenges of international importance exist concurrently – to achieve viable systemic change within existing profitable industries and to change the perception and behaviour of citizens towards sustainability.

### Research Process

TED research began formally in 1996 when research funding became available. The progress of research within the group was marked by a series of significant events / exhibitions and commissions over 10 years before the introduction of the TED's TEN cards.

At an early stage, exploratory research was necessary to both map the field of sustainable textile design and help identify a structure for a methodology of investigation. Qualitative research methods were used in combinations to develop theory and practice in an iterative sequence.

Through a process of 'constructive research', we identified the need to produce prototypes by 'imagining new things and building them' (Koskinen, 2011), defining our models through practice. This was made visible in our first collective staff exhibition in 2002. A

large installation provided a case study for communication of our hypotheses to the public - a key event in the experience of collaboration.

In 2005-9 an AHRC funded project included a research exhibition on the theme of recycling. We exhibited 'narrative prototypes', explored through making. A significant element was the provision of workshops to encourage the interconnection between the strategies that have since been developed for professional design audiences.

The importance of communication through group workshops was focused on Swedish fashion businesses in workshops with particular reference to the life cycle of textile products. The use of cards (six at first and, subsequently, ten) as tools for analysis, role-playing and prompts for developing strategies began at this stage, with a phenomenological approach to designing for sustainability (Moustakas, 1994). Phenomenology provided a ready-formed methodological basis for our investigation, with our subjective, embodied design experience and our empathy for consumer appreciation of the material qualities of clothing, as knowledge.

As a tool for action and reflection, the TEN cards provide a checklist for designers - a lens with which to view issues of concern, cut through the rhetoric and solve apparently intractable problems. In using this as a tool for analysis of conditions, prompts and enablers, the designer contributes to networks of innovation (Bussramcumpakorn & Wood, 2010). The cards as tools are now used in workshops following an initial lecture and visual presentations, forming part of the delivery system. As practitioners with tacit knowledge, we can group strategic combinations of the TEN cards to take risks and apply unexpected, sometimes playful solutions via experimentation and improvisation. This process was exemplified in a curated exhibition of artifacts, 2012. Using the cards as a brief to select and commission designers, we created imaginative, stimulating examples for large volume clothing producers, towards a different life view.



Figure 2: The TED's TEN cards used during TED's 24: MISTRA Summer workshop at Chelsea College of Art & Design (June 2012).

<https://vimeo.com/52461083>



Figure 3: *Once T-Shirt* (Politowicz & MacLennan, 2012) created using the TED's TEN cards for US apparel company VF Corporation to probe the potential for short life, disposable/recyclable clothing.



Figure 4: *Fractal Shirt* (Earley, 2013), Top 100 project (upcyclingtextiles.net). Created using TED's TEN cards to extend the idea of material reuse – in this case overprinting a polyester shirt with paper stencils – by engaging directly with the consumer

<http://vimeo.com/64294297>

In the development of immersive workshops (Cassim, 2010), employing an empirical approach, we have demonstrated the relevance of the TEN cards to product development in industry, replicating and accelerating a proposed product supply chain with a design focus. An evaluative framework of the innovation that the workshops encourage is developed using qualitative research methods in a 'self-report instrument', to map the effects of the cards on the design process. In retrospective assessment of workshop participation, observation and description are used to examine the experience, to generate theories during the action research process for evolution of workshop practice.

This has been a key part of our participation in an international consortium as one of eight research projects, funded by the Swedish government. The multi disciplinary MISTRA consortium includes social scientists, political scientists, material scientists and designers in a 'Meta-design Framework' (Wood, 2013).

By proposing and promoting compelling alternatives to existing industrial structures through cross-discipline collaborations, we encourage social change while challenging assumptions and beliefs about how we live, work and consume. Bourdieu refers to such active researchers as 'cultural intermediaries'. The cards (now TED's TEN) are currently being reformulated for other design disciplines, which is a particularly significant development and testimony to interest shown in the research group.

## Research Outcomes

1. The TEN cards are a tangible product of our research in the sustainability of textiles. They were created, over a long time period from our research into the body of knowledge, from extensive practice-based research and workshops for industrial companies. The cards are: templates for the development of individual strategies; flexible theoretical tools to help in the investigation of particular problems; and maps for surveying the whole territory.

2. The body of knowledge gathered from literature, conferences, exhibitions, practice-based research and teaching experience is a key outcome of our research. It informs our studies and has grown by addition from our original activities to the networks, which have developed in recent years. We adapt and update our resource materials for each intervention or engagement – tailoring to suit a broad and diverse industry – from bags to shoes, menswear to womenswear.

3. As practitioners we make prototypes as examples of innovation used in conjunction with the TEN strategy cards - as exhibited in: 'Artists at Work: New Technology in Textile and Fiber Art', Prato Textile Museum (inaugural exhibition), Prato, Italy (2003); Exhibits in 'Rethink! Eco-Textiles', Audax Textile Museum, Tilburg, Netherlands (2010); 'Trash Fashion: Designing Out Waste', Science Museum, London (2010-2012). They were used to curate 'Well Fashioned': Eco style in the UK', Crafts Council Gallery, London (2006) and to curate and commission work for the 'Responsible Living' section of the VF Corporation 'FutureWear' Exhibition, USA (2012) (fig. 3). The Top 100 project (1999-ongoing) continually tests the combination of cards, specifically probing the potential for fashion: as a service, connecting the consumer to products for added value and additional lifecycles; and cyclability as a driver for systemic change (fig. 4).

4. The outcomes in education have been important and have helped in the modification of the cards. Students researched the usual environmental problems and created a rich variety of visual examples to use on the cards. Some students looked beyond to life-cycle issues, consumer awareness, service and retail delivery and wider social concerns. Workshops in education were held in London, Hamburg, Berlin, Dublin, Eindhoven, Tel Aviv and Stockholm. Sustainability workshops can now be offered as part of the basic curriculum in Textile Design.

Dissemination and education workshops are important outcomes in influencing future professional developments.



Figure 5: TED's TEN cards in use with Danish fashion companies, at the Sustainable Fashion Academy / NICE workshop, (September 2011). SFA workshops in 2013 now use the Higg Index to measure this improvement by design, giving a pre- and post- TED workshop score.

*"When educating the Scandinavian fashion industry in sustainability as part of the NICE project, it is crucial for us to include cutting edge tools and resources. TED's TEN provides designers with hands on examples and relevant dilemmas and have been highly valued in the NICE educational programme.*

*Furthermore, we have been much inspired to include TED's TEN in the 'NICE Code of Conduct and Manual for the Fashion and Textile Industry' as a concrete and recommended tool for designers to work with under the UN Global Compact umbrella."*

**Jonas Eder-Hansen, Development Director Danish Fashion Institute**

5. The development of the workshops in industry is closely allied to the use of the TEN cards and to their current format. After launching the cards via the TED website, we were approached by large and small companies to introduce sustainability to their design teams. Companies recognise the need for general awareness and education concerning sustainability. Some wanted help in direct problem solving; others were concerned with product narrative for brand image and marketing. The experience of running workshops using the cards as strategies, accompanied always with visual examples and diagrams, helped us develop our communication techniques and tailor our efforts to make the workshops of direct relevance.

6. Our work in TED for MISTRA is particularly demanding and large scale – to look at the future development of the Swedish fashion industry. We collaborate with multi-disciplinary teams of scientists and engineers developing new materials and processes and with social and political scientists who are researching value systems. The work of lifecycle analysts on the connection between systems and speed are of particular interest to our study of the relative speeds within the lifecycle loops of products. This is of direct relevance to our proposals for changing manufacturing processes in order to embed cyclability without compromising aesthetic value or the functional sophistication of textile structures. Apart from collaboration, all TED practitioners have common ground in the sustainability of the lifecycle and the importance of consumer engagement.

Our individual studies include: open-source involvement in DIY and designer-led hacks to slow down the lifecycle of existing garments by refashioning and extending the life of clothes; the use of innovative paper-based fabrics developed from Swedish wood pulp in a radical new fast fashion cycle; a new generation of polyester treatments for closed loop cycles; the life-span of materials in relation to products and identifying the pressure points for environmental damage.

7. The cards are being used and developed in this exciting context and in the requirements to work with Swedish fashion companies such as H&M and in textile design education in Stockholm. The SMEs in the Swedish Fashion Academy (SFA) (fig. 5) are already using the TEN sustainable strategies in conjunction with the Higg interactive measurement tool (The Higg Index 1.0) to evaluate their TED redesigned garments. TED will present an online exhibition of the findings of our research team.

8. The development of communication skills is an important outcome in itself. The MISTRA Consortium has attracted an extensive group of like-minded designers and commentator bloggers who contribute to the project. A group of PhD students formally associated with each project in MISTRA have become an international network, bringing a new generation of critical involvement. Textile and fashion graduates, connected to TED through websites, blogs and annual events, are another part of our extensive, critical community. Our networks of communication are agents of change, shaping us and our work as much as the cards and workshops continue to do.

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