

Elastic Learning Tools

Teaching material resilience

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Hounslow Uniform Service and the pupils'
Mending / Resilience Record Book (Earley, 2014)



A colleague at Chelsea who teaches on the BA Textiles course – a well respected industry professional who has carved an illustrious career from designing knitwear – would not let her daughter study textiles at school. For the field that she knows to be highly innovative – exciting and daring even – as well as socially engaging and impactful, is taught in such an out-dated and uncreative way that the colleague feared it would destroy any interest or enjoyment in something she views as vital to a quality of life.

Textiles are in and of themselves are resilient. Textile constitution and construction create hardwearing and long-lasting cloth, material-with-potential. After fabrication this resilience drops. The actions of cutting and stitching do not weaken the inherent structure of cloth, but, perversely, do weaken cloth resilience. By being formed into 'fashions' and sized clothing-objects, cloth becomes temporally situated; form giving a finite life span that the material-with-potential did not have. The giving of form is the taking of resilience.

The other paradox in this situation is our resilience towards clothing-objects – in the face of ennui, signs of use and advertising, our resilience in retaining and maintaining our wardrobes, particularly in the case of uniforms.

'Clothing links us physically and metaphorically to the world. We can use it to locate ourselves, develop new ways of seeing, comprehending scales of production from seed to product ... clothing is a material pin in our relational map.'

This poses the question, how can we strengthen both the material and the human resilience of these post-fabrication clothing-objects? How can we develop tools and skills and mind-sets to move towards more resilient textile and clothing systems?

The ubiquitous school uniform gives a starting place to explore these questions, to challenge the out-dated and under-resourced school system; to innovate with cheap, local, low impact and tactile approaches fused with social network and online accessible resources and support, to work with the young designers and consumers of tomorrow. Designers must become systems thinkers, empowered to enable the rapid change that is urgently needed.

Enlightened economists are arguing for new, more democratic industrial systems to bring about better employment of planetary resources and people. Architecture is challenging the environmental, social and aesthetic impact of the Victorian house with radical new living shapes created from innovative materials. These efforts towards resilience can also be seen in those challenging our current school system – an inherently Victorian model – with a focus on the need for creativity, hands-on experiences, and a deeper appreciation for the world we are educating our children to inhabit.

Resilience, in this context, incorporates *learning, trust, reputation, evaluation, reflexivity* and *flexibility*. As safe places for experimenting and exploring, schools need space for iterative learning through play,

making and storytelling. Resilience requires trust in those with deep expertise willing to be part of the curriculum and being prepared to build institutional reputation through this exchange. Rejecting the downward slide to the numerical standardisation of assessment and instead crediting our children with their achievements, the quality of their thought processes and their ability to discern between information (Mitra, 2014); to be reflexive and flexible. Assess their resilience.

Clothing links us physically and metaphorically to the world. We can use it to locate ourselves, develop new ways of seeing, comprehending scales of production from seed to product. As 'local' becomes a value and experience rather than geography (Schwarz, 2013, p.38), clothing is a material pin in our relational map.

We know a greater connection is needed between the consumer and those producing clothing and suffering the effects of production values and the post-consumer life of our textiles. In schools, clothing needs to be scrutinized. The neglected space of uniform is the focus of our inquiry and a site for building a resilient-textiles-system.

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Children in particular are hard on their clothes – running, falling, spilling and so on – should we aim not to curate but to help them remedy mishaps, making time to care for clothing, rewinding garments through the freeing-ness of mending? Visit any primary school in the country to find a lost property area stuffed with neglected clothing. For many, not all, it is cheap and replaceable, not warranting time spent cleaning or mending. Some schools have parent-run shops but these are not creative places, and damaged goods very rarely get remade. School uniform has no impact on academic achievement, but plays another role as a social signifier and the basis of peer interaction. It is a child's first formal sense of self through dress.

Topical learning – politically, environmentally and socially – playful and experiential, not sought solely through tablets or phones (ironically Steve Jobs forbade his children to play with screens), we propose to counter the bombardment of advertising we are exposed to from the labour ward onwards, by

advertising different choices, creating situations where, avoiding a 'totalizing ideology or subjectivity' (Trend, 1998), we give children space to experiment, make ideas and to decide for themselves. Resilience is the power or ability to return to the original form or position after being bent, compressed, or stretched; resilience is elasticity. Resilience is also the ability to recover readily from illness, depression, adversity, or the like; resilience is buoyancy.

We propose that a resilient-textiles-system reacts to 'stretches' of its resources into forms (fabric to clothes), experiences of / with those forms, and supporting logistics. Located in / reflecting on history, use and practicalities, resilient-textiles-systems have the elasticity to return to original forms (clothing to fabric), uses (being worn) and capabilities (eg waterproof). Resilient-textiles-systems use localised care and repair paradigms with adaptable frameworks, mediating global traversing of textiles, using a bricolage of tools, techniques and agents. Resilient-textiles-systems are a use-loop on various scales (off)centred on users and / or materials.

Tools are simply things that helps us do what we need to do, how we need to do it. They may be multi- or mono- purpose, physical or immaterial, manual or mechanical, may require one or many operator(s). Designerly ways of being include observing, listening and empathising, experiencing as self and other, comprehending and translating, sharing, physically, mentally and emotionally. Designers are tools in and of themselves, and create tools for others.

Experimentation using that to hand, referring to but not mimicking Make-Do and Mend values, could have high impact. Design and creation of artefacts giving space for play, communication, inspiration and peer-to-peer learning can engage users with problems and information; an inside-out garment could lead to inside-out thinking.

Elastic Tools could help us navigate advertising and ethics, choices through newness and oldness, and develop abilities to (re)make from our personal stash creating buoyancy, retained and shared through informed decision-making and action taking, learning from one another and experience. Uniform gives us a site from which to think radically about the hands-on and low-tech activities in schools and at home, and teach non-uniform resourcefulness, resilience and elasticity, creativity and innovation. For outside the curriculum box and inside the child lay the answers we are looking for.

References

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Synthetic Resilience

Can synthetic biology help mitigate and adapt to global environmental challenges?

Carole Collet

Raccoon and Linx Fungi, Carole Collet, 2014



We, as humans depend 100% on planet Earth to continue to evolve as a species. The very natural system we depend upon is under serious human-triggered and global threats, yet we are too distracted by short term thinking to face the long-term implications of our exploitative attitude towards the planet. And when we do try, we face the complexity of global politics and fail to reach impactful decisions. The recurrent inability of the climate change summits to help reach and implement effective action plans is one of but many examples. And we have seen the potent impact of extreme disruptive weather patterns around the world in the past decade. We are beginning to feel the consequences of the way we

have devised toxic agricultural and manufacturing systems in the 20th century in our day-to-day lives. So we turn to the notion of resilience to explore how we can better adapt to a changing world. But in my view there is no point to foster a culture of resilience if it is detached from how we design, produce and dispose of the 'stuff' around us. There is a risk that we continue to think of us as detached from the health of Nature, and simply explore ways to adapt as opposed to ways to mitigate and reverse our negative impact on the planet. I believe that a culture of resilience cannot be detached from fostering a different approach to our material production and consumption.

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So how can we radically rethink the way we design and manufacture? By investigating how nature has developed resilient life strategies for the past 3.8 billion years, we can explore models of life evolution that can inform our future. For instance, a plant fabricates new leafs at ambient temperature with very few molecules and without endangering its neighbours, nor polluting the soil it depends upon to survive. There is a lot we can learn from biological systems, whether we attempt to imitate them or whether we develop co-working strategies with them. However in the quest to get close to fabricate like nature does, we have reached an unprecedented step in humankind. We have devised bio-technological tools to create and design new living species. With synthetic biology, we are developing a fast growing and competitive industry of computer generated living 'factories' that take the form of bacteria, algae and yeast customized to produce human-specific substances such as biofuel, medicine, vanilla or saffron flavours.

The synthetic biology community defends this new science by using a sustainable argument. In the light of a current energy intense and polluting manufacturing and agricultural models that devastate the planet, and in the context on the forthcoming 3 billion extra people expected in the next 20 years, the argument is that synthetic biology will extend the capacity of the planet to support us. It will do so by replacing current manufacturing and harvesting models with a new form of 'synthetic Nature' which will not outcompete with 'natural Nature' but release it from intense exploitation.

A simple example is that if yeast is reprogrammed to produce palm oil, we will not need to continue destroying Indonesia's forests. The paradox here is that synthetic biology can help protect Nature by developing genetically engineered new species, which in turn could endanger nature itself if mismanaged. This technology can also cross the divides of our animal and vegetal worlds: 'By reading and rewriting the gene codes of bacteria, plants, and animals... We start to turn cells, seeds, and animal embryos into the equivalent of floppy disks... Data sets that can be changed and rewritten to fulfill specific tasks. We start deliberately mixing and matching apples and oranges... Species... Plants and animals.'

Juan Enriquez, *As the future catches you* (2001).

'The paradox here is that synthetic biology can help protect Nature by developing genetically engineered new species, which in turn could endanger nature itself if mismanaged.'

Is synthetic biology leading us to a form of 'decadent' resilience, one which is led by techno-scientific explorations? What are the alternatives, and do we actually have a choice?